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Draft Environmental Impact Statement and General Management Plan

MOJAVE

NATIONAL PRESERVE • CALIFORNIA

Produced as a Component of the
Northern and Eastern Mojave Planning Effort

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G. Early

Draft
General Management Plan
Environmental Impact Statement

Mojave National Preserve
San Bernardino County, California

This *Draft General Management Plan / Environmental Impact Statement* presents the proposed management approach and two alternatives for the management of the 1.6 million-acre Mojave National Preserve in the northeastern Mojave Desert in California. Mojave is a new unit of the National Park Service (NPS) established by Congress on October 31, 1994, by the California Desert Protection Act. This *General Management Plan* (GMP) serves as the initial overall management strategy for the next 10–15 years under which more detailed activity or implementation plans are prepared. A general management plan is general rather than specific in nature, and focuses on purposes of the unit, its significant attributes, its mission in relation to the overall mission of the agency, what activities are appropriate within these constraints, and resource protection strategies. It also provides guidelines for visitor use and development of facilities for visitor enjoyment and administration of the preserve.

The proposed action envisions Mojave National Preserve as a natural environment and a cultural landscape, where the protection of native desert ecosystems and processes is assured for future generations. The protection and perpetuation of native species in a self-sustaining environment is a primary long-term goal. The proposal seeks to manage the preserve to perpetuate the sense of discovery and adventure that currently exists. This means minimizing development inside the preserve, including the proliferation of signs, new campgrounds, and interpretive exhibits. The National Park Service would look to adjacent communities to provide most support services (food, gas, and lodging) for visitors. The proposal also seeks to provide the public, consistent with the NPS mission, with maximum opportunities for roadside camping, backcountry camping and access to the preserve via existing roads. The proposal would seek funding for the complete historic restoration of the Kelso Depot and its use as a museum and interpretive facility. A balance is struck between the NPS mission of resource preservation and other mandates from Congress, such as maintaining grazing, hunting, and mining under NPS regulations and continuing the existence of major utility corridors. The proposal would maintain the ability of landowners in Mojave to maintain their current way of life, while seeking funding to purchase property from willing sellers where proposed uses conflict with the primary mission of preserving resources. Nearly 230,000 acres within the preserve are in nonfederal ownership.

In addition to the proposal (alternative 1), the alternatives included in this document also include the existing management (alternative 2) and an optional management approach (alternative 3). The existing management alternative describes the continuation of current management strategies. It is commonly referred to as the no-action or status quo alternative. Under this alternative, existing visitor and administrative support services and facilities would be maintained in their current locations. There would be few improvements in existing structures and there would be no change in road maintenance, although some roads might be improved if funding became available. No significant changes in existing recreation use would occur. Kelso Depot would be stabilized if funding could be obtained, but it would not be restored. Land acquisition would focus on obtaining minimum funds to acquire property from willing sellers and properties where uses conflict with the preserve mission. The optional approach provides for an increase in the facilities and services provided for public enjoyment. A small visitor contact building might be built at Kelso to provide information. Land would be acquired in sensitive areas and wilderness. 3

The 90-day opportunity for public comment during this phase of the conservation planning and impact analysis process starts with the Environmental Protection Agency filing a notice of availability in the *Federal Register*. All review comments must be received by that time and should be sent to the following address:

Superintendent
Mojave National Preserve
222 East Main St., Suite 202
Barstow, CA 92311

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The manuscript has been written three times, and each rewriting has discovered errors. Many must still remain; the improvement of the part is sacrificed to the completion of the whole. The correction of errors will be welcomed.

Will Durant, *The History of Civilization*, Volume IV, The Age of Faith

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ACRONYMS & ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AUM	Animal Unit Month—the amount of forage required by an adult cow and calf (or an equivalent combination of other animals) for one month
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CalTrans	California Department of Transportation
CCC	Civilian Conservation Corps
CDCA	California Desert Conservation Area
CDF&G	California Department of Fish and Game
CDIC	California Desert Information Center
CDPA	California Desert Protection Act
CNPS	California Native Plant Society
DEIS	Draft Environmental Impact Statement
DOD	Department of Defense
DWMA	Desert Wildlife Management Areas
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
FWS	U.S. Fish and Wildlife Service
FLPMA	Federal Land Policy and Management Act
GMP	General Management Plan
HMA	Herd Management Area
HML	Herd Management Level
HMP	Herd Management Plan
LPP	Land Protection Plan
MOU	Memorandum of Understanding
MUC	Multiple Use Class
NECO	Northern and Eastern Colorado Planning Effort
NEMO	Northern and Eastern Mojave Planning Effort
NEPA	National Environmental Policy Act
NFS	National Forest Service
NHPA	National Historic Preservation Act
NPS	National Park Service
OHV	Off-highway Vehicle
ORV	Off-road Vehicle
USGS	U.S. Geological Survey
WMP	West Mojave Plan
WSA	Wilderness Study Area

EXECUTIVE SUMMARY

This *Draft General Management Plan / Environmental Impact Statement* evaluates alternative management approaches for Mojave National Preserve in the northeastern Mojave Desert in California. Mojave is a new unit of the National Park Service (NPS) established by Congress on October 31, 1994, by the California Desert Protection Act (CDPA). This is one of three documents prepared by the Northern and Eastern Mojave planning team as part of an interagency coordinated planning effort. The team also is preparing a draft General Management Plan for Death Valley National Park, and a California Desert Conservation Area Plan amendment for the Bureau of Land Management (BLM) lands. All three documents are anticipated for release at about the same time, however, the BLM plan amendment may be distributed somewhat later.

As a new unit of the national park system, Mojave has no existing management plans in place. This effort will produce the first general management plan that will serve as the overall management strategy for the next 10–15 years. More detailed activity or implementation plans will be prepared under this plan. The *General Management Plan* is general in nature, rather than specific, and focuses on purposes of the unit, its significant attributes, its mission in relation to the overall mission of the agency, what activities are appropriate within these constraints, and resource protection strategies. It also provides guidelines for visitor use and development of facilities for visitor enjoyment and administration of the unit.

The impetus for this plan was the passage of the California Desert Protection Act on October 31, 1994. This act transferred over 3 million acres of the California Desert from the Bureau of Land Management to the National Park Service and designated nearly 8 million acres of wilderness on NPS and BLM lands. In addition, the CDPA created the Mojave National Preserve and redesignated Death Valley and Joshua Tree National Monuments as national parks. Changes in the management of the public lands in the California desert, including listing of the desert tortoise, increasing development, public use pressures, and passage of the CDPA, caused NPS, BLM, and Fish and Wildlife (FWS) desert managers to address the anticipated changes in management of these federal lands by looking at management issues beyond traditional boundaries. Three sub-regional planning teams were established in the desert region of southern California: the West Mojave Plan (WMP) in the western Mojave Desert, the Northern and Eastern Mojave Planning Effort (NEMO) in the northern and eastern Mojave Desert, and the Northern and Eastern Colorado Planning Effort (NECO) in the northern and eastern Colorado Desert. These teams would gather information, define issues, and develop methods for issue resolution. The National Park Service, which manages most of the land in the northern and eastern Mojave Desert, took the lead for the NEMO interagency planning effort. The other participating agencies are the Bureau of Land Management and the U.S. Fish and Wildlife Service. The Bureau of Land Management is the lead for the West Mojave Plan and the Northern and Eastern Colorado Planning Effort. The planning region boundaries for all three areas will cease to exist when the planning efforts are completed.

The planning team conducted 20 public meetings in September 1995 and April 1997 to gather public input on the management direction for the parks and BLM lands. From this input and meetings with interested parties (such as county departments, special interest groups, state agencies, Native American tribes, etc.) and discussions with NPS and BLM staff, proposed management plans were developed. This proposed plan for Mojave National Preserve (alternative 1) is compared with existing management or the no-action alternative (alternative 2), and with a third optional management approach (alternative 3). Table 1 provides a summary of the actions examined under each alternative. Table 2 is a summary of the primary effects of each action.

After public comments on the proposed action and alternatives are received and considered, the National Park Service will prepare a final environmental impact statement (FEIS). Thirty days after release of the final environmental impact statement a record of decision will be produced. Soon after the record of decision a summary General Management Plan and Land Protection Plan for the preserve will be released. These documents will be summary presentations of the management direction arrived at through the public process.

TABLE 1: SUMMARY OF PROPOSED ACTION AND ALTERNATIVES

MOJAVE NATIONAL PRESERVE

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
GENERAL DESCRIPTION OF ALTERNATIVES			
	• Protecting resources and providing for visitor enjoyment are primary goals. • Balance this mission with the other Congressional mandates, such as maintaining grazing, hunting, and mining under NPS regulations, and continue existence of major utility corridors. • Preserve is a self-sustaining natural environment and a cultural landscape, where native desert ecosystems and processes are assured for future generations. • Manage preserve in a manner to perpetuate the sense of discovery and adventure. • Look to adjacent communities to provide most support services and facilities. • Restore Kelso Depot to serve as a museum and interpretive facility. • Provide funding for purchase of property from willing sellers where proposed uses conflict with primary mission.	• Follow the existing management approach that the National Park Service has been following since the creation of Mojave National Preserve by the 1994 California Desert Protection Act. • These actions are typically referred to as the "status quo" or no action alternative, since this is what would occur if no planning was undertaken. • Most of the actions continue policies that are now being followed.	• This alternative is the same as the proposed action, except for a greater emphasis on visitor services and facilities.
NATURAL RESOURCES			
	• Resource management activities would be guided by a natural and cultural resources management plan. • Staffing and funding increases would be requested to correspond with added responsibilities identified in this plan. • Priorities determined through Strategic Plan • Partnerships with educational institutions and other agencies would be sought to inventory and monitor resources.	• Management of resources currently guided by direction provided in the enabling legislation and NPS regulations and policies. • Development of a natural and cultural resource management plan is underway. • Staffing and funding for this program would remain at the current level, with modest increases possible through special initiatives. • Project priorities would be determined based on existing staff availability and funding.	• Same as proposed action.
Air Quality/ Visibility/Night Sky/Noise	• National Park Service would actively participate in adjacent land use planning and monitor the visual, air, night sky, and water resources of the preserve.	• Staff reviews and comments on adjacent project proposals, as they become aware of them. • No systematic monitoring of air, water, night sky or noise currently underway.	• Same as proposed action.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
Water Resources	• Water would be used in accordance with legal authority and with consideration for the needs of other water users. • Water would be used efficiently and frugally. • NPS would seek to protect, perpetuate, and possibly restore surface water and groundwater as integral components of park aquatic and terrestrial ecosystems. • Surface water and groundwater withdrawn for the public use would be the minimum amount necessary to achieve preserve purposes. • All water withdrawn for domestic use would be returned watershed system once it has been treated to ensure that there would be no impairment of preserve resources. • The effects to the preserve's resources from water withdrawn from sources outside of the preserve would be monitored.	• Same as proposed action.	• Same as proposed action.
Floodplain & Wetland Areas	• Occupancy and modification of floodplain and wetland areas would be avoided wherever possible.	• Same as proposed action.	• Same as proposed action.
Water Developments	• Use of water developments (guzzlers, livestock tanks, and troughs) would be examined. Developments benefiting vegetation and wildlife would remain. • National Park Service would begin restoring self-sustaining natural water sources.	• Existing guzzlers, livestock tanks, and troughs are maintained with the Superintendent's permission. • Motorized access to guzzlers within wilderness for the purpose of maintenance or replenishment of water are reviewed on a case-by-case basis.	• Same as proposed action.
Water Rights	• The NPS and BLM work to protect federal water rights established by the CDPA and other authorities. • NPS and BLM have agreed to incorporate respective policies, guidelines and listed principles to manage and protect federal water rights.	• State records in Sacramento have been searched to identify outstanding water rights. • The NPS has taken steps to convert water rights in Mojave from BLM to NPS records.	• Same as proposed action
Sensitive Species	• National Park Service would protect sensitive species and continue to work with CSU and FWS to protect the Mohave tui chub. • National Park Service would implement measures in the Desert Tortoise Recovery Plan prepared by the U.S. Fish and Wildlife Service to protect the desert tortoise. • Developers in desert tortoise critical habitat on preserve land would be required to purchase prime replacement habitat for the desert tortoise per formula.	• A preliminary list of species of special concern has been assembled. • The desert tortoise and its habitat are being managed indirectly through other resource management (hunting, burros, grazing…) • No changes in management of the Mohave tui chub are proposed. The artificial pond population at Soda Springs is maintained in cooperation with the FWS, CDF&G and the Desert Studies Center consortium.	• Same as proposed action.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
Introduced Species	• Nonnative plants and animals would not be introduced. • Management actions, including eradication would be undertaken. • Burros would be removed by a multi-phased approach including capture, adoption and possible direct reduction of last few animals to reach a zero population level.	• Efforts to reduce burro populations from current population of over 1,300 animals to previous BLM herd management level of 130 animals through live capture and adoption are made each year. • Tamarisk eradication efforts would continue as part of interagency efforts.	• Same as proposed action.
Disturbed Land Restoration	• Disturbed land restoration and native species restoration would be encouraged. • Natural and cultural areas would be evaluated per listed guidelines for proper treatments.	• No ongoing efforts by National Park Service to restore existing disturbed lands. • New disturbance proposed requires restoration. • Removal of hazardous materials from sites continues • Project specific restoration work is planned.	• Same as proposed action.
Native Species Restoration	• National Park Service would strive to restore extirpated native species whenever certain criteria can be met.	• No ongoing efforts exist to reintroduce extirpated native species.	• Same as proposed action.
Fire Management	• Document and assess the state of existing fire effects research in desert ecosystems and formulate desert fire management strategy and plan. • Research burns may be initiated within specific prescriptions and burn sites would be monitored to assess changes over time.	• Existing policy is to suppress all fires.	• Same as proposed action.
Paleontological Resources	• Paleontological resources would be protected, preserved, and interpreted for public enjoyment and scientific research in accordance with park management objectives and approved resource management plans.	• No active program in effect to gather data or interpret resources. • Scientific research conducted by entities other than National Park Service. • Random patrols of backcountry.	• Same as proposed action.
Cave Resources	• A cave management plan would be prepared for significant cave resources. • The NPS would work cooperative with CA Dept. of Parks and Recreation on cave resources found at Providence Mountains State Recreation Area.	• No action is being taken on cave resources.	• Same as proposed action.
Inventorying and Monitoring	• The NPS would consult with resource experts to develop a comprehensive strategy for this work.	• An annual strategic plan would be prepared with resource plans to guide this work.	• Same as proposed action.
Cultural Resources	• Develop and implement program to identify, inventory, interpret and nominate archeological sites, historical properties, cultural landscapes and ethnographic resources to National Register. • Develop and implement a systematic applied cultural resource program. • Mojave's resource management plan would address the requirements, projects and funding to implement the cultural resource program. • Develop collaborative partnerships with	• Current emphasis on compliance to meet the requirements of the National Historic Preservation Act and NPS *Cultural Resource Management Guidelines*. • Present cultural resource management programs include limited data collection and inventory of archeological sites, ethnographic resources, and historic properties; preparation and updating of list of classified structures; preparation of cultural resources	• Same as proposed action.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	government agencies, public and private organizations that have cultural resource management or research expertise. • The historic Zzyzx facilities would be maintained in accordance with NPS historic structures standards.	studies. • Limited protection of cultural sites by sporadic ranger patrols, with remedial actions focused primarily on high use visitor areas.	
NATIVE AMERICAN INTERESTS			
	• Consultation and coordination with tribes would be conducted on a regular basis. • Systematic consultation agreement and protocols to be developed. • NPS liaison would meet regularly with the tribe's representatives and discuss local issues. • Review board would be formed to consider tribal requests, to cooperate on joint monitoring of resource use and to resolve differences concerning resource use. • Work with Bureau of Indian Affairs to provide for training internships for tribal members.	• Consultation and coordination with historically associated Tribes conducted on specific projects. • No systematic consultation plan to provide guidance on when and what issues to consult on.	• Same as proposed action.
VISITOR USE, SERVICES AND FACILITIES			
	• Staffing and funding for visitor services and maintenance of facilities would increase as new services and facilities are funded. • Few major changes over existing conditions, except for restoration of Kelso Depot and minor improvements to visitor facilities would be made.	• Staffing and funding for visitor services and maintenance of facilities is expected to remain at approximately constant levels. • Some special initiative projects, repair and replacement funds and routine cyclic maintenance funding are anticipated.	• Same as proposed action, except for increased emphasis on visitor services and facilities to enhance the visitor understanding of the resources.
Interpretive and Orientation Program	• National Park Service would develop an interpretive plan that focuses on major themes. • Overall objective of the interpretation program would be to support an experience relatively free of development and improvements, with opportunities to experience a sense of exploration and discovery, and to encourage sustainable, low impact recreation.	• Interpretation programs operated in and out of information centers in Baker, Needles and Hole-in-the-Wall. • No overall interpretive plan in place. • Ranger-led walks and talks provided.	• This alternative would increase the level of contact between NPS interpretive rangers and the public. • There would be less focus on self-guided interpretation.
Interpretation and Orientation Facilities	• A small information, visitor contact center would be placed at the headquarters building in Barstow. • Information centers at Baker and Needles would continue to operate with current focus. • Hole-in-the-Wall visitor contact center would continue to serve visitors with information and interpretive programs. • A self-guided interpretive and orientation program at Soda Springs would be updated and improved. Facilities may be rehabilitated or	• Existing NPS visitor information centers at Baker and Needles serve as the initial visitor contact points. • Hole-in-the-Wall visitor contact center is the only NPS facility within the boundary that provides staffed visitor information. • Very few road or trailside exhibits exist.	• A new information center may be constructed at Baker. • A nature center would be considered in the development concept plans for Hole-in-the-Wall. • A small facility at Soda Springs would be built to support a staffed interpretive program. A development concept

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	replaced with new facilities. • A few additional road or trailside interpretive and information displays and wayside exhibits would be developed. • Existing exhibits would be analyzed for accuracy and consistency with interpretive themes. Some may be removed and/or replaced. • Portable information would be developed to support self-guided interpretive program and to provide advance information for visitors. • A special educational outreach effort would be made to reach students that might otherwise not have an opportunity to visit national parks.		plan would be prepared. • Provide for more wayside exhibits and interpretive displays. • Less focus on self-guided interpretation than in the proposed alternative. • Trailhead parking displays would be established, as need warrants.
Kelso Depot	• Kelso Depot would be restored to its period of historic significance for use as a museum and interpretive facility. • Office space, minimal overnight lodging for NPS staff and reopening of the Beanery restaurant are other proposed uses.	• Funding being sought to stabilize Kelso Depot and restore landscaping. • Minimal on site interpretation or other visitor facilities.	• Stabilize the Kelso Depot and restore landscaping. • Provide external displays, information contact center and comfort station.
Education and Outreach	• Continue to pursue partnerships with school teachers and university field offices at Soda Springs and Granite Mountain to provide students and the public with current information on the cultural and natural elements of the preserve. • Special educational and outreach efforts would be undertaken to reach students that might otherwise not have an opportunity to visit national parks and other disadvantaged populations.	• NPS staff work with local schools and at area day camps and other off site groups to provide information on the preserve. • UC and CSU separately develop and sponsor classes in the preserve.	• Same as proposed action.
Day Use Only Areas	• Areas are designated for day use only to avoid the potential conflict between day use recreational visitors and camping use.	• No day use only areas are established.	• Same as proposed action.
Recreational Day Use Activities	• National Park Service would not allow recreational activities that are inconsistent with preserve mission, would cause unacceptable impacts to visitors or resources, or would pose a safety hazard. • The preserve would adopt climbing guidelines, such as clean climbing techniques, to allow rock climbers to enjoy their experiences while promoting responsible public actions and protecting natural and cultural resources. • Hunting is limited to game birds, deer and bighorn sheep during their normal State seasons. • Fishing permitted under State fishing	• Climbing activities permitted under NPS policy and regulations. • Hunting, fishing, and trapping would continue to follow existing California Department of Fish and Game's hunting regulations. • Collecting non-game birds, reptiles, amphibians and invertebrates not permitted under NPS regulations. • Fishing permitted under State fishing regulations and NPS regulations at 36 CFR. • Trapping permitted under State regulations and NPS regulations at 36 CFR.	• Same as proposed action except, hunting, fishing, and trapping would be limited to the months of October through February for all game and non-game animals.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	regulations and NPS regulations at 36 CFR. • Collecting non-game birds, reptiles, amphibians and invertebrates not permitted under NPS regulations. • Trapping permitted with restrictions.		
Signs	• Signs would be unobtrusive and designed to blend with the natural environment. Maps and other media would be provided to reduce need for signs. • Sign plan to be prepared.	• Planning underway for entrance signs at along major highway entrance. • Existing signs being evaluated for retention, modification or removal. Few new signs being added.	• Same as proposed action.
Developed Campgrounds	• Ongoing and additional improvements would continue at Mid Hills campground. • No changes are proposed for Hole-in-the-Wall campground. • Campsite densities would not be increased. • Campsites and trails in the Mid Hills campground would be redesigned to increase the level of accessibility for people with disabilities and for other purposes. • Locations for new semideveloped campgrounds would be considered.	• Mid Hills and Hole-in-the-Wall campgrounds are the only developed campgrounds operated by the National Park Service (total of 61 sites). • Hole-in-the-Wall campground has a significant level of accessibility for visitors with disabilities.	• If visitation and demand for campsites increases, the number of campsites in developed campgrounds would be increased, but the density would remain the same. • Locations for a group campsite at or near Mid Hills campground would provide a cooler alternative in the summer than Hole-in-the-Wall.
Backcountry and Roadside Camping	• Previously used backcountry campsites would be considered open unless designated as closed. • To protect sensitive resources, some campsites may be closed and camping activities relocated elsewhere. • Resource conditions and visitor use would be monitored at certain locations to determine need for sites. • Limit camping in high use areas to designated campsites, per previous BLM direction. • Some sites may be closed to avoid conflict with private property. • Backcountry structures on public land would remain open for public use unless problems related to visitor health and safety are identified.	• Roadside camping allowed only in previously disturbed campsites along existing routes. • Most backcountry structures on public land are available for public use with no restrictions.	• In sensitive areas (desert tortoise critical habitat, mines, cultural sites), vehicle-based roadside camping confined to a limited number of designated campsites having a metal fire ring or campsite marker as identification for use. • Areas of high use would be improved with metal fire rings and picnic tables at each campsite (except Mojave Road).
Visitor Use Fees	• Preserve would explore options for increasing fee collection revenues consistent with Congressional direction. • A fee study would determine feasibility of collecting entrance fees. • Camping fees would continue to be collected at the Hole-in-the-Wall and Mid Hills campgrounds.	• Camping fees are collected at the Hole-in-the-Wall and Mid Hills campgrounds. • No entrance fees are collected.	• Same as proposed action.
Commercial Services	• Possible concession operation for food service at Beanery restaurant in Kelso Depot. • All commercial activity requires permit.	• All commercial activity requires permit. • No contracts exist for concession facilities in the preserve, and none	• Same as proposed action.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
		are anticipated at this time. • Filming and business permits are granted on a case-by-case basis.	
ROADS AND CIRCULATION			
	• No changes in the existing roads are anticipated. Some limited upgrading of heavily used roads may be undertaken as funds permit. • A road management plan may be prepared to provide detailed guidance for management of existing road system. • Vehicle use in the preserve is limited to street legal vehicles. • No off road driving is permitted.	• No changes to existing roads are anticipated. • NPS is seeking formal agreement with San Bernardino County on road maintenance. • Kelso Dunes access road improved with crushed rock to reduce wash boarding. • No maintenance is performed on high clearance and four wheel drive backcountry roads, except for emergency repairs. • Vehicle use is limited to street legal vehicles and no off road driving is permitted.	• Same as proposed action.
Mojave Road	• Mojave Road would remain open for street legal vehicles, mountain bikes, equestrian and hikers. • Business permits would not be granted for commercial guided tours of the Mojave Road. • Maintenance would be limited to repairs needed to allow continued vehicle passage. • Traditional rock cairns, maps, guide book or other media would be the primary guides for route finding. • Large groups using the road that have seven or more vehicles, or more than 15 people would be required to camp at designated areas and obtain a special use permit.	• Mojave Road is open for use, with limited restrictions on the type of use it receives. • Street legal vehicles are permitted. • Camping along the road would continue to be regulated under restrictions under the preserve's interim management plan. • No directional or interpretive signs would be installed along the road. • Business permits required for commercial tours of the road.	• Business permits would be allowed for commercial guided tours of the Mojave Road. • Large groups would be allowed to camp in any pre-disturbed areas along the Mojave Road corridor with a special use permit. • NPS would use permit system to protect against overuse of the road. • Monitoring of use would be done and a limit of 1,000 vehicles over existing annual use would be established. This limit would be reevaluated and adjusted as needed.
Trails	• Backcountry/wilderness management plan would address trail use by hikers, equestrian, bicycles, and disabled. • Pedestrian walks or single track trails would not be open to stock use. • All other trails would be open for use by hikers and equestrian use. • Bicycles allowed on all roads, but not on single track trails, off road, or in designated wilderness. • Roads closed by the designation of wilderness would be considered for use as trails. • Efforts would be made to create more accessible trails.	• No trails planning or development is anticipated. • No trailheads or parking areas for trail use are planned. ok / record	• Same as proposed action.
Trains	• If Amtrak resumes passenger train service, the NPS would work to place	• Passenger train service discontinued by Amtrak in 1997.	• Same as proposed action.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	NPS interpreters on trains and allow passengers to stop at Kelso Depot. • The NPS would support train stops at Barstow and Nipton, CA, and at Primm, NV.	• No programs to seek access to Mojave.	
ADMINISTRATIVE OPERATIONS AND FACILITIES			
Administration	• Examine options for constructing or leasing a new headquarters office in Barstow. • Fire protection services would continue to be located at Hole-in-the-Wall. • Offices for staff would be located in Needles, Baker, Kelso Depot, and Hole-in-the-Wall. • Baker would become the interim central maintenance operation. New facilities would be constructed at the existing yard. • A mobile maintenance operation would be developed to support maintenance needs. • NPS would explore possibility of a shared highway equipment and materials staging yard at Kelso or Essex.	• Headquarters located in Barstow. • Maintenance operation overseen out of Barstow, with field satellite offices in Baker and Hole-in-the-Wall. Baker facility is the main field office and shop. • The Hole-in-the-Wall operation would also receive limited improvements, but remain as a secondary support facility. • Fire protection services located at Hole-in-the-Wall, in cooperation with the Bureau of Land Management.	• Same as proposed action, except in addition to the visitor information center at Needles, an office would be established on the east side of Mojave to provide space for maintenance, visitor services and resource management.
Employee Housing	• Existing housing would be renovated, replaced, or removed after needs assessment, cost effectiveness and environmental evaluation. • Employee housing would not be provided in Needles and Barstow. • Some of the upper rooms in the Kelso Depot may be utilized for employee housing and temporary quarters for staff conducting field work. • If existing buildings in the preserve are acquired by purchase or donation, NPS would evaluate historical value and cost effectiveness of bringing these buildings up to current standards for use as housing. • Several housing units would be added at Kelso, Hole-in-the-Wall, and possibly other locations.	• Existing housing at Baker would be replaced and upgraded as funding permits. • No additional housing would be provided. • NPS-owned houses in Mojave would be evaluated for possible renovation per NPS policy.	• More employee housing would be created in the preserve to place employees close to their work. • Less emphasis on renovation of existing homes.
Solid Waste Disposal	• Solid waste would continue to be hauled to an approved site outside the preserve.	• The Baker landfill was closed by state law in 1997. • Federal law prohibits new landfills in all units of the national park system.	• Same as proposed action.
EDUCATION AND RESEARCH CENTERS			
	• Cooperative agreements would be developed with the California State University Consortium for management of Soda Springs Desert Research Center and the UC Regents for the Granite Mountains Natural Reserve. • NPS would continue to be responsible for	• Soda Springs Desert Research Center and Granite Mountains Natural Reserve operating under informal agreement with the NPS. • NPS working on elements of cooperative agreements with California State University	• Same as proposed action, except: • Unstaffed entry stations would be placed at key entry points to public use areas adjacent to and in the Granite Mountains

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	the review and approval of all research proposals on park land. • Ranger led tours of Soda Springs and some of the Zzyzx structures would be coordinated with CSU to minimize impacts to CSU operations. • CSU would continue to maintain all leased facilities at Soda Springs, except for the main entrance road from I-15 to the facility gate, and structures associated with visitor contact and interpretation. • NPS would work with UC to ensure protection of research.	Consortium and the University of California. • No restrictions exist for public use of public lands at Soda Springs Desert Research Center. • CSU maintains facilities at Soda Springs except facilities associated with visitor contact and interpretation. • Discharge of weapons in the Granite Mt. Natural Reserve prohibited by San Bernardino County Ordinance and NPS.	Natural Reserve to inform visitors not to disturb research plots. • NPS and UC would jointly monitor sections of the Reserve that receive public use to determine if research plots are threatened. • The NPS would seek a partnership with the Reserve to collaborate on research, interpretation, and education.
LAND OWNERSHIP AND USE			
	• Same as existing management.	• Nonfederal rights on federal lands regulated through existing NPS and other regulations.	• Same as proposed action, but less acquisition.
Boundary and Authorized Acreage	• No changes in the boundary of the preserve are proposed.	• Final boundary map submitted to Congress. • Authorized acreage identified in section 502 differs from actual acreage due to more accurate computer calculations that indicate total acreage of 1,589,165 acres exist within the external boundary of Mojave. • Approximately 170,000 acres of private land occur within the external boundary of the preserve. Of this, 85,318 acres are owned by Catellus Corp. About 90% of the remaining private land is split among 1,200 owners.	• Same as proposed action.
Wilderness	• Manage wilderness for maximum statutory protection per CDPA, for use and enjoyment of the American people in such manner as would leave them unimpaired for future use and enjoyment as wilderness. • Wilderness/Backcountry plan may be prepared. • Once completed, final wilderness boundary maps and legal descriptions would be submitted to Congress.	• Wilderness management currently focused on occasional overflights and other monitoring efforts to identify illegal uses. • Wilderness boundaries in Figure 2 reflect the preliminary final interpretation of Congressional maps.	• Same as proposed action.
Land Acquisition	• Land Protection Plan would guide land acquisition. • The NPS would seek funds to acquire private lands and interests from willing sellers. • Donations and exchanges from willing sellers are pursued. • Private land in wilderness, habitat for threatened or endangered species and riparian areas are considered high priority.	• NPS purchase of private lands and interests is not an ongoing or active program. • Donations and exchanges from willing sellers are pursued, and third party acquisitions from willing sellers are encouraged. • Exchange of School sections ongoing per CDPA direction.	• Private lands or interests would only be acquired on an opportunity basis if the NPS were approached by a landowner wanting to sell, or if a development project would adversely affect park resources. • Exchange of School sections would continue.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	• Private land in Lanfair Valley that is currently developed with single-family homes would not be acquired unless requested by owner. • Exchange of School sections would continue.		
Mineral Development Activities	• Same as existing management.	• Mojave National Preserve was closed to new mining claim location and all forms of appropriation and disposal under public land and mineral laws by the CDPA. • Existing unpatented mining claims required by CDPA to undergo validity to determine if a discovery exists. • Mineral development on valid mining claims regulated in accordance with 36 CFR Part 9A. • Acquisition initiated when proposed development fails to meet 9A approval standards and no alternative development scenario is feasible.	• The NPS would prepare a mineral management plan that analyzes sensitive resource values and the potential impacts of likely mineral development scenarios. Where mineral development would significantly conflict with resource values, the NPS would seek funding to acquire the mineral rights. • Until funds were appropriated, proposed mining operations would be evaluated under NPS regulations at 36 CFR Part 9A as under existing management.
Abandoned Mines	• The NPS would develop an active abandoned mineral lands inventory and reclamation program. • Program goal to eliminate safety hazards and hazardous materials, restore disturbed soils and vegetation, protect bat habitat and preserve or stabilize significant cultural resources.	• Inventory of abandoned mining properties has been initiated. • No reclamation or stabilization of properties ongoing. • Hazardous materials being cleaned up as discovered.	• Same as proposed action.
Sand and Gravel for Road Maintenance	• Same as existing management.	• Sand, gravel, cinder, etc. on federal lands not available for extraction or sale. • Use of borrow materials for road maintenance must conform with existing NPS policy that requires materials to be obtained from non-preserve sources, unless uneconomical. • Preserve is preparing cooperative agreement with the County of San Bernardino for limited use of borrow sites to maintain roads in the preserve.	• Same as existing management.
Grazing/Range Management	• Cattle grazing privileges would continue to be managed under NPS regulations, policies, and preserve management direction at no more than the current level as of October 31,1994. • Superintendent shall determine appropriate use, restrictions, and grazing fees.	• NPS has issued Special Use Permits to five ranchers to continue grazing cattle on ten allotments. • Allotment boundaries, AUMs, and the rules and restrictions are the same as existed when the Bureau of Land Management managed the preserve prior to the CDPA.	• Limited new range developments may be permitted. • No community based grazing management team would be sought.

	PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL APPROACH (ALTERNATIVE 3)
	• NPS would allow appropriate maintenance of existing range developments. • If ranchers notify the Superintendent of their willingness to sell base property, the Superintendent would immediately notify the Secretary of Interior of the priority acquisition and request Land and Water Conservation funding from Congress (per Sec. 510 of CDPA). • Mojave would also work with conservation organizations to purchase grazing permits from willing sellers. • If a grazing permit is purchased and the new owners (i.e. conservation organizations) request retirement, the grazing permit would be permanently retired. • Where credible, published research studies demonstrate that grazing is negatively impacting the desert tortoise, appropriate mitigation measures would be taken. • A grazing management plan would be prepared for any active NPS grazing permits. • A community based management team of ranchers, environmental organizations and park staff may be established to provide a forum for communications on range management practices.	• Presently, there is no range monitoring, and there is limited monitoring of ranchers' compliance with permit conditions. • Grazing allowed under the existing FWS Biological Opinion on the Desert Tortoise, amended March 1997) until this plan is completed or April 2000, whichever occurs first. • Grazing fees received by the NPS based on the BLM's fee schedule ($1.35/AUM).	
PLAN IMPLEMENTATION			
	• General Management Plan identifies further activity level planning needed to guide management of Mojave. • Phased schedule provided for additional planning. • Kelso Depot restoration first priority. Funds being sought for design and construction drawings to begin immediately after plan approval. • Desert tortoise, burro removal, and grazing management strategies to begin immediately.	• Priorities for allocation of staff and funding determined on a year by year basis using the Strategic Planning Process. • Strategic plan sets five-year planning goals that could be revised and adjusted yearly. • Staff and funding adjusted as needed to place resources where most appropriate to meet the demands. • Activity level planning would be pursued, with most of the identified plans being completed within the next five years.	• Same as proposed action.
Staffing and Funding	• Full implementation requires an additional $2.6 million and 56 staff. • Kelso Depot restoration proposal estimated to cost about $5 million.	• Current operating base budget is $2.5 million and 36 staff.	• This alternative would required an additional $2.7 million and 57 staff over the existing levels.

TABLE 2: SUMMARY OF IMPACTS

MOJAVE NATIONAL PRESERVE

PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL ALTERNATIVE (ALTERNATIVE 3)
IMPACTS ON NATURAL ENVIRONMENT		
• NPS participation in adjacent land use planning would benefit the visual, air, night sky, and water resources of the preserve. • Desert tortoise recovery would be enhanced by removing burros, managing grazing per results of credible research, reducing vehicle related mortality in areas of desert tortoise concentrations and implementing other Recovery Plan recommendations. • As non-natives (burros, tamarisk) are removed, natural water flow, wildlife, soil, and vegetation would benefit. • Short term negative effects to soils and natural quiet may occur during burro roundups. • Hardening or designation of camping spots in high use areas would reduce impacts to natural resources by eliminating the establishment of new campsites reducing the expansion of existing campsites. • Closure of some campsites within sensitive habitat would reduce negative impacts to soil, water, other sensitive resources, and the desert tortoise. • Hardening and designation of campsites in high use camping areas would reduce impacts to natural resources by reducing the possibilities of campsite expansion and creation of new campsites. • The creation of semideveloped campgrounds would cause local disturbance to natural resources during construction and after from public use. Use of these campgrounds may reduce impacts to undeveloped areas by relocating visitor activities to semideveloped campgrounds. • Construction of roadside pullouts for interpretive displays and a visitor center at Kelso Depot would create soil and plant disturbances. • Kelso Depot use as a museum and interpretive facility would place increased demands on water resources. • Potential purchase of grazing permits and their subsequent retirement would benefit native vegetation, wildlife, soil, and water resources.	• Most negative impacts to the natural environment are due to the presence of burros and cattle. These impacts include: damage to soil crusts, reduced water infiltration, inhibit nitrogen fixation in desert plants, provide a favorable seed bed for exotic annuals, soil compaction, destruction to natural springs, and destruction to native vegetation. • Vegetation is affected to varying degrees by the non-native burros and cattle foraging and their subsequent trampling of the soil and by camping activities. • Burros are known to contaminate water sources (through defecation and urination), over-browse or eliminate aquatic and riparian vegetation, and monopolizing the use of springs or seeps. • Developed water (wildlife guzzlers, mining and livestock water developments) may be affecting wildlife populations by allowing some to grow to levels unobtainable with available natural water. • Presently hunting is allowed year-round with no limits on hares (black-tailed jackrabbits) and many non-game animals such as coyotes, skunks and opossum. The effects on these populations from hunting are unknown. • Mining or agriculture activities on private or state lands and mining claims (about 15% of preserve) could negatively impact natural resources.	• Reduction of grazing would benefit native vegetation, wildlife, soil, and water resources. • Designated campsites and closure of others within sensitive habitat would reduce negative impacts to soil, water, other sensitive resources, and the desert. • Formalizing camping areas at remote locations would reduce the expanding surface disturbance associated with continued use without set tables and tent pads. • No hunting during active tortoise season would protect tortoises from random shooting by vandals. • Disturbance would occur as a result of increased construction projects for facilities and signs, but would not exceed 15 acres. • The presence of more staffed visitor centers would provide more opportunities for NPS staff to contact and educate the public on protection of natural resources, reducing potential for negative impacts to natural resources.

PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL ALTERNATIVE (ALTERNATIVE 3)
IMPACTS ON CULTURAL RESOURCES		
• Archeological resources, historical properties, cultural landscapes and ethnographic resources would benefit from the development of a systematic inventory, research and preservation program. • Flood-proofing the Kelso Depot would protect the historical building. • Reduced damage to cultural resources with burro removal. • Acquisition of private property could result in additional cultural resources being protected. • Potential reduction of grazing could be viewed negatively by people who view grazing as a historical use.	• Cultural resources are potentially threatened by burro and cattle trampling and by visitor camping or driving near isolated and unprotected sites and vandalism. • Historic properties listed on, or determined eligible for the National Register would continue to be afforded stabilization/ preservation treatment as funding allows. • The Kelso Depot would be stabilized and historic landscaping restored. Lack of staff presence means the building continues to be vulnerable to vandalism. Lack of fire protection could result in loss of building.	• Restriction on hunting seasons would allow more control on illegal use of weapons in non-hunting season and would enhance cultural resource protection. • Restrictions to roadside camping locations would result in greater protection and less disturbance of existing archeological sites and sensitive cultural sites.
IMPACTS ON NATIVE AMERICAN INTERESTS		
• Development of consultation and coordination agreements with the tribes and establishment of communication protocols would increase the protection of Native American interests and sites. • Information could be provided at Kelso Depot, Baker and Needles information centers, and the Hole-in-the Wall to raise public understanding and appreciation of tribal ties to the Mojave Desert. • Native American sacred and traditional use areas would receive additional protection with the potential elimination of camping near such sites.	• Sporadic communication with tribes on project specific issues may result in misinformed decision-making and distrust due to lack of information. • Native American interests have not been fully identified and therefore may be inadvertently harmed. • Presence of information center in Needles provides NPS staff in a location where frequent contact and discussion is more feasible.	• Lower potential threat to sensitive cultural sites from campers using roadside campsites.
IMPACTS ON VISITOR USE, SERVICES, AND FACILITIES		
• As burro numbers are reduced, there would be fewer opportunities to see burros. Some people would be upset over the direct reduction of last few burros. • To others, as the damaged habitat recovers, seeing fewer burros would be viewed as a positive impact. • Visitor safety would improve with an expected decrease in the number of traffic accidents involving burros or cattle. • Visitors would become more aware about resources and opportunities through preparation of an interpretive plan, creation of Kelso Depot interpretive facility and road and trailside displays and wayside exhibits. • Restoration of the depot and use as a museum and interpretive facility at the Kelbaker and Cima roads intersection would enhance visitor contacts. • Visitor enjoyment would be enhanced by the opportunity to visit the restored depot. • Minor traffic delays during Kelso Depot construction.	• An increase in the number of vehicles combined with fast speeds would increase the potential for accidents. • Number of vehicle/cow and burro accidents would remain about the same, but decline slightly as numbers are reduced. • Visitor's experience would be affected by viewing cattle ranching, burros, mining, guzzlers and stock tanks and hunting and trapping activities. • Visitors would potentially experience development activities such as house building and other facilities, that may appear to conflict with the preserve's purpose. • Most visitors would continue to enter Mojave without any NPS contact prior to their visit, leaving a large percentage of these visitors with a limited amount of travel, safety or interpretive information. • Installation of entrance signs and information kiosks should increase	• Restricting the hunting season to October through February would increase visitor safety, but negatively impact recreational opportunities for hunters. • Presence of more staffed visitor centers would provide better opportunities for NPS staff to contact and educate the public on resource protection. • Increased traffic on Kelbaker and Kelso-Cima roads to get to visitor facilities. • An increase in NPS use of Soda Springs facility for outreach classes and events could impact CSU operations. • Quality of experience camping on the Mojave Road would be increased with the permit system in place; however, this would limit the number of camping opportunities. • Improvements to some roadside

PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL ALTERNATIVE (ALTERNATIVE 3)
• Increased traffic to visitor facilities on Kelbaker and Cima roads. • Reinforcement of dike by Kelso Depot would raise the level of protection from flooding for the depot and visitors. • A information center at NPS headquarters in Barstow would increase the availability of information to the public in the Barstow area. • Camping and day use restrictions may cause people to use areas elsewhere within the preserve or outside the boundary. • Climbing guidelines may cause climbers to feel that they have less climbing opportunities. • Improved access for people with disabilities to trails, facilities, and campsites would increase their opportunities. • Camping opportunities on the Mojave Road would be reduced, but quality of the experience would be enhanced. • The potential for passenger train service could reduce vehicle traffic congestion and would provide an enhanced visitor experience. • Hunters would be impacted by not being able to hunt non-game species or trap in some areas, however, visitor safety would be enhanced.	visitor understanding and safety, and reduce conflicts with private land. • Unlimited use of Mojave Road may adversely affect the condition of the road, and crowding may result at some areas along the road. • If visitation and use dramatically increase, campgrounds may fill up more frequently, leaving some visitors without a place to camp. • Limited public access to historic properties at Soda Springs would continue.	campsites may adversely affect people who do not want changes made to their favorite campsites.
IMPACTS ON SOCIOECONOMIC ENVIRONMENT		
• A separate analysis of socioeconomic conditions in the planning area and the effects of the proposed action was conducted by Dean Runyan Associates under contract to the NPS. That analysis concluded that no significant effects would occur in the NEMO planning area as a result of the proposed action. There would be some loss of grazing related jobs if allotments were acquired, but the overall effect would be offset by an increase in tourism jobs.		
IMPACTS ON ADMINISTRATIVE OPERATIONS AND FACILITIES		
• Burro removal would increase costs and staff time over the short-term. • Increase in staff and costs for operating and maintaining Kelso Depot and Barstow visitor contact center. • New maintenance facilities at Baker and Hole-in-the-Wall would improve capabilities. • New housing would decrease time for employees to get to their jobs and save vehicle fuel, but would increase maintenance workload. • New housing at Baker would be more energy-efficient than existing trailers. • Initial large administrative workload and cost to acquire properties, diminishing over time as nonfederal lands and interests are brought under public ownership. • New properties acquired may also increase maintenance or stabilization	• Maintaining a burro herd size at 130 animals would be the most expensive alternative over the long-term. The estimated cost for capture, transporting, adoption preparation and adoption is $1,200 per animal. • Grazing fees collected under the existing management are not sufficient to manage a grazing program. Additional funding would be needed. • Campground administration support would be continued with staff and volunteers managing campgrounds. • NPS staffing levels would not increase with this alternative; however, all workloads would increase limiting NPS's ability to serve the public and protect resources. • Employee housing would remain inadequate and below NPS standards.	• Providing office space on the east side of the preserve would provide better coverage of the preserve. • Grazing fees could be used for range development and resource management projects. • The creation of a visitor contact center, the nature center at Hole-in-the-Wall, would have additional staffing needs and costs. • Campground expansions, improvements to backcountry sites and new interpretive and hiking trails would create additional staff workload. • Monitoring and efforts needed to enforce the Mojave Road's vehicle capacity would require

PROPOSED ACTION (ALTERNATIVE 1)	EXISTING MANAGEMENT (ALTERNATIVE 2)	OPTIONAL ALTERNATIVE (ALTERNATIVE 3)
costs.		additional staff time.
IMPACTS ON EDUCATION AND RESEARCH		
• Potential for disruption of research plots would be reduced through burro removal and monitoring efforts. • Designated campsites in sensitive areas would reduce the potential for negative impacts to field research projects or sensitive resources. • Replacement of visitor facilities and an upgraded self guided tour at Soda Springs may attract more visitors creating potential for conflicts between education and visitors.	• Cattle, burros and vandalism could disrupt or destroy research plots.	• A shorter hunting season would increase the level of safety to researchers, students, and teachers. • The NPS partnership with the Reserve to collaborate on research, interpretation, and public education would increase the public's awareness and understanding of natural and cultural resources.
IMPACTS ON LAND OWNERSHIP AND USE		
• Reduced resource conflicts for private landowners and potential beneficial impacts to ranching operations with burro removal. • Private property would be protected by closure of some roadside campsites. • Private land could be acquired as funds are provided. • Properties would be purchased at fair market value. Reduction of nonfederal ownership would result in fewer instances of visitor trespass problems for private landowners and greater management control of resource use in the preserve. • Restrictions on grazing activities and ranching practices (seasonal closures, reduction in the number of cattle grazing in an area or relocation of a grazing allotment to another portion of the preserve outside of desert tortoise critical habitat) could affect allotment value. • Impacts from cattle trespass from adjacent BLM allotments would be reduced with proposed fencing along NPS/BLM boundary. • NPS efforts with signs and public education would help reduce impacts to private property from visitor use • Impacts on mineral development activities same as existing management.	• Free roaming burros and cattle present some resource use conflicts by foraging and use of water on unfenced private and state lands. • Ranchers paying grazing fees and maintaining water sources are supporting burros at their expense. • Increased visitation may cause conflicts with private landowners. • Acquisition of mining properties that do not meet NPS regulatory approval standards would permanently remove those sites from potential mineral development, reducing the total amount of available mineral resources in the region that may be developed.	• Grazing could be restricted as the Desert Tortoise Recovery Plan's recommendations are carried out. • A shorter hunting season would result in less trespassing and fewer hunting accidents. • Increased acquisition of mineral rights may occur as a result of the sensitive resource analysis and the identification of areas where mineral development would be incompatible with the Preserve mission.

PURPOSE OF AND NEED FOR THE PLAN

INTRODUCTION

The purpose of the federal action is to adopt a general management plan (GMP) for the newly established Mojave National Preserve created in 1994 by the California Desert Protection Act. The goal of the general management plan is to determine how best to manage the new unit to meet the Congressional intent as expressed in the California Desert Protection Act and the mission of the National Park Service.

General management plans provide the overall management strategy for approximately 10–15 years. More detailed activity or implementation plans are prepared after this plan is approved. General management plans are broad in scope rather than specific, and focus on purposes of the unit, its significant attributes, its mission in relation to the overall mission of the agency, activities that are appropriate within these constraints, and resource protection strategies. They also provide guidelines for visitor use and development of facilities for visitor enjoyment and administration.

A land protection plan and a development concept plan for the Kelso Depot are included as components of this planning effort. The land protection plan (appendix C) provides the management strategy for nonfederal lands and interests that occur within the boundary of the preserve. Nearly 230,000 acres of the preserve are in private, local, or state ownership. The Kelso Depot development concept plan provides details regarding the proposal to restore the depot for use as a museum and interpretive facility. Section 512 of the California Desert Protection Act requires that the management plan address the feasibility of using the depot for interpretation, education and scientific purposes.

The National Parks and Recreation Act of 1978 (P. L. 95-625) requires the National Park Service to prepare general management plans for each park unit. The act specifies that general management plans address measures for the preservation of the area's resources, the types and general intensities of development, visitor carrying capacities and potential boundary modifications. This proposed general management plan addresses these issues, except for boundary modifications. During the prolonged debate over the creation of the Mojave National Preserve the boundaries were subjected to considerable scrutiny and public debate. The National Park Service believes a comprehensive examination of potential boundary modifications at this time is unwarranted and should be delayed until the National Park Service has managed the area with the existing boundaries for several years to determine if there are areas where adjustments are justified.

BRIEF DESCRIPTION OF MOJAVE NATIONAL PRESERVE

Mojave National Preserve is a vast expanse of desert lands that represents a combination of Great Basin, Sonoran and Mojave desert ecosystems. This combination allows a visitor to experience a wide variety of desert plant life in combinations that exist nowhere else in the United States in such close proximity.

Located in southern California, the desert area is a land of mountain ranges, sand dunes, great mesas and extinct volcanoes. The preserve contains several diverse mountain ranges, the Kelso dune system, dry lake beds and evidence of volcanic activity (domes, lava flows, cinder cones). Plant and animal life complement the geological features. The preserve contains the finest Joshua tree forest in the world. Providence Mountain State Recreation Area (Mitchell Caverns), the University of California's Granite Mountains Natural Reserve, and California State University's Desert Studies Center at Soda Springs are also within the boundaries.

Mojave is bounded to the north and south by major interstate highways, I-15 and I-40. The Nevada-California state line makes up most of the eastern boundary. Located about half way between Las Vegas and Joshua Tree National Park, it is an area that many people have seen through their windshields but few have taken time to explore.

Of the preserve's 1.6 million acres, about 700,000 acres are legislated wilderness. In addition, about half is designated as critical habitat for the federally listed threatened desert tortoise.

Evidence of the early human uses includes archeological sites, possibly dating back to 12,000 years. Historic features, such as mail and trade/travel routes, ranching, farming and mining, are abundant and often well preserved. The old Union Pacific train depot at Kelso serves as a wonderful reminder the railroading hey-days of the 1920s'. The collection of buildings at Soda Springs, called Zzyzx, built by "Doc" Springer also has a remarkably interesting tale to tell of this most unusual man. These two features and many more, such as Fort Piute, Government Holes, and Ivanpah town sites add to the very rich history of the preserve.

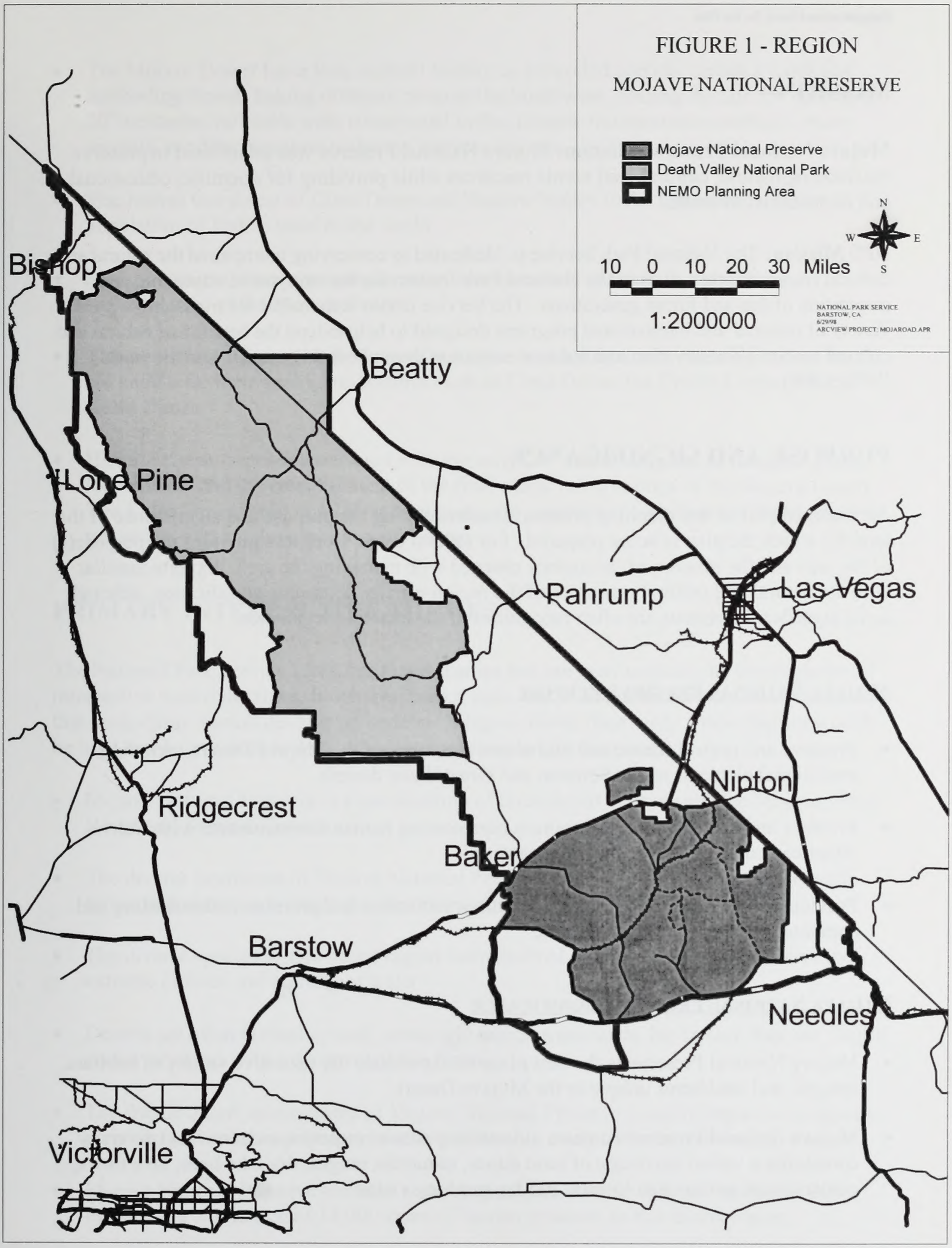


FIGURE 1 - REGION

MOJAVE NATIONAL PRESERVE

MISSION

Mojave National Preserve Mission: Mojave National Preserve was established to preserve outstanding natural, cultural, and scenic resources while providing for scientific, educational, and recreational interests.

NPS Mission: The National Park Service is "dedicated to conserving unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Service is also responsible for managing a great variety of national and international programs designed to help extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world" (NPS, 1996).

PURPOSE AND SIGNIFICANCE

An essential part of this planning process is understanding the purpose and significance of the land for which the plan is being prepared. For federal lands, Congress provides the purpose(s) of the area and the mission of the agency charged with managing the area. Experts familiar with the natural and cultural resources of the region usually determine significance, although some significant elements are often recognized in the enabling legislation.

MOJAVE NATIONAL PRESERVE PURPOSE

- Preserve and protect the natural and scenic resources of the Mojave Desert, including transitional elements of the Sonoran and Great Basin deserts.
- Preserve and protect cultural resources representing human use associated with Native American cultures and westward expansion.
- Provide opportunities for compatible outdoor recreation and promote understanding and appreciation of the California desert.

MOJAVE NATIONAL PRESERVE SIGNIFICANCE

- Mojave National Preserve is the best place to experience the extensive variety of habitats, species, and landforms unique to the Mojave Desert.
- Mojave National Preserve contains outstanding scenic resources, rich in visual diversity containing a varied landscape of sand dunes, mountain ranges, dry lake beds, lava flows, cinder cones, Joshua tree forests, and far-reaching vistas.

- The Mojave Desert has a long cultural history as a traveled corridor across a harsh and foreboding desert, linking different areas in the Southwest. During the late 19th and early 20th centuries, railroads were constructed in this historic transportation corridor; more recently, modern interstate highways traverse the area.

- The Joshua tree forest of Cima Dome and Shadow Valley is the largest and densest population of Joshua trees in the world.

- Mojave National Preserve contains an extensive variety of habitats and species representative of the Mojave Desert.

- The preserve is internationally known as a place to conduct desert research, and its lands are known for their geological features such as Cima Dome, the Cinder Cones, and the Kelso Dunes.

- Historic Kelso Depot is associated with the early 20th century heyday of the great steam locomotives and the establishment of the final major rail crossings of the Mojave Desert. The Kelso Depot, built in 1924, is a rare surviving example of a combined depot, railroad restaurant, and employees' rooming house.

PRIMARY INTERPRETIVE THEMES

The National Park Service identifies major themes that are used to guide the development of interpretive materials (signs, brochures, walks, talks, etc.). Major themes are those elements that each visitor should develop an understanding of during their visit. These themes would be used by Mojave staff to develop an interpretive plan for the preserve.

- Mojave National Preserve is a combination of three desert ecosystems: the Mojave, Great Basin, and Sonoran Deserts.

- The diverse landforms of Mojave National Preserve were created by dramatic geologic forces that continue to shape this desert environment.

- The diverse species of this desert region have evolved many adaptations to survive the extreme climate and scarcity of water.

- Deserts are often viewed as vast, seemingly barren wastelands, but in fact, they are fragile, arid ecosystems with a diversity of life forms.

- The fragile desert environment of Mojave National Preserve is easily impacted by human activities – even human footprints affect the land in many different and lasting ways.

- Mojave National Preserve contains archeological and historic sites and resources that document a continuum of 12,000 years of human presence in this desert region.

- The vastness and remoteness of the preserve offer a sense of solitude and opportunities for exploring a land of diverse mountain ranges, sand dunes, extinct volcanoes, and mesas.

MANAGEMENT OBJECTIVES

- Seek to protect significant natural and cultural resources and values, including geologic features, and to foster an improved understanding of natural processes through monitoring efforts and scientific research.

- Manage desert resources, including wilderness, for maximum statutory protection provided for under the law.

- Participate cooperatively in the preservation of ecological resources that extend beyond the preserve's boundaries.

- Manage visitor use in a manner that promotes exploration and self-discovery, while protecting resources from overuse.

- Educate visitors regarding the NPS mission and the natural and cultural resources of the preserve.

- Improve the effectiveness of operations and administration.

- Work actively with authorized users, including military overflights, to reduce noise impacts and perpetuate the sense of solitude for visitors.

- Perpetuate scenic landscapes. Landscapes viewed from scenic road corridors and developed areas should be free from recreational activities and facilities that distract from the scenic beauty of the landscape.

- Protect wilderness values and the wilderness experience in areas congressionally designated as wilderness.

- Perpetuate a sense of exploration and discovery.

- Perpetuate visitors' ability to view a nearly pristine night sky untainted by artificial light sources.

- Find creative ways to increase the accessibility of NPS programs, facilities and experiences in a reasonable manner. Provide access for all segments of the population, including visitors with disabilities, small children, senior citizens, and populations that generally do no use national parks, in coordination with the laws requiring the National Park Service to preserve and protect wilderness and cultural and natural resources for the enjoyment of future generations.

- Pursue mutually supportive partnerships with representatives from gateway communities and local and tribal governments. Consider ways in which communities and the parks can support each other. Promote economic growth of communities in ways that complement the preserve's management objectives.

CARRYING CAPACITY

A widely accepted definition of carrying capacity is: "the character of use that can be supported over a specific time by an area developed at a certain level without causing excessive damage to either the physical environment or the experience of the visitor." That level of development can range from none to extensive amounts of infrastructure to support visitor uses.

There are three principal components that relate to determining the carrying capacity for a national park:

- The ecological or physical capabilities of the natural and cultural resources to sustain certain levels of visitor use without reaching unacceptable levels of damage. Each landscape may have varying abilities to absorb different kinds of and levels of visitor use before unacceptable levels of impacts occur.

- The sociological carrying capacity is the ability of visitors to enjoy and appreciate these resources without interference by other visitors. Determining social carrying capacity can be one of the most difficult parts of the three components. Sheer numbers relating to visitation in an area are not a valid determinant of a quality visitor experience. Other factors such as visitor behavior, preconceived expectations and social norms of the dominant user group can affect visitor enjoyment.

- The type and amount of NPS management that has been, or can be applied to the activity to mitigate unwanted impacts are also a factor. This component relates to the management of such things as roads, parking lots, buildings, trails, and visitor information. For example, providing interpretive services is an effective way to instill in the visitors an understanding and appreciation for the park resources. Such understanding helps implement carrying capacity for a particular area. Limiting parking in certain areas can effectively limit visitation.

The current carrying capacity for Mojave National Preserve must generally be assumed to be at a low to moderate level because the staff available to monitor resources and visitor activities is limited. Because the contact between NPS staff and visitors is rare, opportunities for offering information and interpretation are limited. More opportunities to present information to visitors could help reduce the potential for unwanted effects on natural and cultural resources. Fortunately, preliminary information indicates that most visitors stay on paved roads, which reduces the potential for impacts on resources. Implementing the recommendations called for in this plan would increase the protection of fragile or sensitive resources.

Because Mojave National Preserve is a relatively new unit of the National Park Service, few pertinent data are available that could be used to determine specific standards or indicators for the carrying capacity of specific areas. Therefore, it is impractical to establish specific standards of acceptability and indicators or quality at this time. NPS managers should manage visitor activities in a manner that leans towards resource protection. Future data-gathering efforts would further help define the carrying capacity of each area within the preserve.

General management plans provide NPS managers with management direction on a broad, prescriptive level. Management objectives for carrying capacity are thus written as narrative statements. These statements define the desired future visitor experience and resource conditions in qualitative terms such as “sense of seclusion,” or “low degree of tolerance for resource degradation.” These qualitative descriptors, which have been identified as “desired visitor experience and resource conditions,” would be refined and translated into quantitative standards during future implementation planning. As previously mentioned, indicators and standards of quality for both the physical and social environments would be developed within future implementation plans. These products would be quantifiable and measurable aspects of the carrying capacity process.

DESIRED FUTURE CONDITIONS

Desired future conditions for natural and cultural resources and the visitor experiences are described below. The descriptions are qualitative in nature and can be translated into quantitative standards over time during the implementation of this plan. Some descriptions could be applied to broad areas such as wilderness, while others apply to smaller areas such as road corridors and points of development. These descriptions serve as guides for managing the land and facilities to achieve desired carrying capacities.

NATURAL AREAS

An informal, self-guided learning experience is provided for visitors in these areas. People are encouraged to get out of their vehicles and walk to features. The pace is slow with low to moderate levels of noise. Visitors typically focus on specific resources with few visual intrusions. Visitors experience a sense of learning through onsite interpretation or other means.

The length of stay at each site is relatively short in comparison to the time visitors spend in the preserve. There is a moderate amount of social crowding and moderate interaction at points of interest and along dead-end trails. Guided ranger walks are occasionally provided for visitors at some locations. Development is limited to items such as low interpretive panels, small directional signs, and hardened dirt paths. Fences are used as a last resort to protect resources if other management efforts do not work. The tolerance for resource degradation is low to moderate, depending on the sensitivity of the resource. The degree of onsite visitor and resource management is moderate and increases or decreases with visitation levels.

WILDERNESS

Visitors in this landscape experience a primeval environment largely untouched by people. Some sections of wilderness within the preserve have remnants of human occupation, but these are considered a part of the scenery to be explored. A high degree of physical exertion is required to hike or ride horseback to this area. A minimal number of hiking trails are present, often requiring a person to travel cross-country to get to a desired destination. Abandoned roads may also be used as routes of travel. Opportunities for independence, closeness to nature, tranquility, and the application of outdoor skills are high. Opportunities for social interaction with other visitors are low, as is the probability of encountering NPS employees. Likewise, evidence of other visitors is minimal.

The landscape offers a high degree of challenge and adventure for visitors. The visual quality of the landscape contributes significantly to the visitor experience and needs to be protected. The tolerance for resource degradation is low, with the exception of designated trail corridors, where a slightly higher level of degradation is allowed within a few feet of the trail and at points where camping occurs. A minimal amount of resource and visitor management is present. Offsite visitor management (provision of information) is low to moderate.

HISTORIC PRESERVATION AREAS

Historic preservation areas offer visitors a chance to gain a sense of the past by using as many of their senses possible without compromising the integrity of the resource. Often there are opportunities to learn by vicariously experiencing the emotions and thoughts of those who lived in the past. The experience is often a visual one, with feelings gained by physical spaces, smells, and sounds adding to the whole experience. Interpretive information adds color and meaning to the experience.

The degree of tolerance for resource degradation is low for historic resources. The chance of seeing other visitors and having social interaction is potentially high, depending on the degree of public access and visitor interest. The opportunity for contact with NPS personnel is high where ranger-led tours are offered. Visitor behavior is managed to protect the character of each place. NPS onsite management is high at sites with high visitation and impact sensitivity. Paved walks, fences, and interpretive panels are used as needed to accommodate public access and interest. If interest is high, improvements may be needed to allow visitors to experience these resources while protecting them from visitor use impacts. Improvements must not distract from the significance of each location. Some features are convenient and easily accessible with little need for visitors to exert themselves, apply outdoor skills, or make a long time commitment to see the area. Some features are at remote locations and would require more effort and skill to experience. Adventure is often a part of the visitor experience at these places. The way in which people currently gain access to these locations should remain unchanged since this experience contributes to resource protection and its appreciation. Changes in access should only be made if there is strong justification to do so. Remote locations should provide a primitive setting with opportunities for solitude, exploration, and learning with minimal amounts of human intervention such as signs or interpretive panels.

VISITOR FACILITIES

The visitor experience in these areas is heavily influenced by structures and other fabricated features, and they are part of the visitor experience. The pace is varied, with opportunities to walk and drive. The site often is noisy with vehicles and people nearby. Visitors have opportunities to hike, learn about resources, and receive many services from facilities. Visual distractions from other visitors and their vehicles are common and expected. Buildings and other facilities are predominant, but where exceptional natural elements or cultural elements are present, they are part of the visitor experience. The constructed features are coordinated by design to reduce the visual contrast with the natural or cultural setting. Although these are developed areas, they still offer a contrast from urban life and a chance to relax and enjoy the outdoors.

Most facilities are convenient and easily accessible by the public with little need for visitors to exert themselves, apply outdoor skills, or make a long-time commitment to see the area. Opportunities for adventure are relatively unimportant. Many areas provide a strong opportunity for social interaction. Encounters with NPS staff are frequent. The tolerance for social crowding is high but there are opportunities to learn and experience a change in pace from city life. Most facilities are accessible to visitors with disabilities. Resource impacts at visitor facilities are as low as possible, occurrences only when there is no practicable alternative. Visitors and facilities are intensively managed for resource protection, visitor management, and safety (that is, there are fences, law enforcement is intensive, and visitor activities are monitored or restricted).

PAVED AND GRADED ROADS

Paved and graded roads are the dominant experience for most visitors. Visitors use these narrow corridors and roadside pullouts for touring, enjoying scenic overlooks, and gaining access to natural and cultural features. While traveling, visitors may read about and understand the features they are seeing. Bicycle travel is allowed, but motorized vehicles are more common. Viewing the scenery is very important, but the views are often of distant landscapes. Vistas are protected. First-time visitors may have a sense of exploration, but little physical exertion is needed, and outdoor skills are not necessary. Visitors may spend a long time in this zone. The probability of encountering other visitors is high, although chances for social interaction are low except at roadside pullouts. The opportunity for direct contact with NPS staff is low unless emergency situations arise.

A moderate to high level of NPS management (highway signs, visitor protection) is needed to provide visitors with a safe and enjoyable experience. Because maintenance work and driving off-roads can cause dirt roads to grow wider, it is necessary to specify maximum road widths and approved pullouts. Roads are limited to specified widths unless where strong justification exists. Resources can be modified for essential visitors and administrative operational needs. The tolerance for resource degradation in these corridors is moderate. Allowable impacts are restricted to a short distance from roads and pullouts.

UNMAINTAINED DIRT AND FOUR-WHEEL DRIVE ROADS

Unmaintained dirt roads provide a unique experience for drivers and other users such as mountain bike riders, equestrians, and hikers. The predominant use is by visitors in vehicles driving to enjoy the scenery, or to go to historic mining sites, or to a specific feature. Some visitors experience a strong sense of exploration, challenge, and adventure. Travel speeds are slow to moderate, with the potential of frequent stops. Many of these roads offer a sense of being in the wilderness and give visitors a sense of escape from urban life. The areas through which these roads pass are predominantly natural, but there is some evidence of people having used the area in the past and present. Increased impacts from human use are prevented to protect the existing qualities of the landscape. Support features such as small directional signs or interpretive panels are present but infrequently seen and inconspicuous in character.

Visitors need to extend themselves, use outdoor skills, and make a large time commitment. Some roads with rough conditions require specific driving skills and more time to complete the route. Opportunities for challenge and adventure are available on some 2-wheel drive roads that require high clearance vehicles. Opportunities for social interaction are low, unless people are traveling in a group. A moderate level of management is provided on heavily used roads to protect resources and visitors. Most people who use these roads do not want to see many other vehicles.

Resource modification is evident, but where possible, it harmonizes with the natural environment. The preserve's tolerance for resource degradation in this zone is low except that limited signs, road surfaces and shoulders, pullouts, and camping areas are permitted. It is recognized that some 4-wheel drive roads have a number of short sections that have been widened through natural occurrences such as washouts.

PLANNING ISSUES AND MANAGEMENT CONCERNS

PLANNING PROCESS INCLUDING ISSUE SELECTION AND DEVELOPMENT OF ALTERNATIVES

In the early stages of this planning process, the planning team developed a list of issues from its own research and from input received from the Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service, as well as from state, local, and other federal agencies and from the public through a series of public meetings held in September of 1995. An agency meeting was held in Barstow, California, and the public meetings were held in Baker, Barstow, Furnace Creek, Independence, Lone Pine, Needles, Pasadena, San Bernardino, and Ridgecrest, California, and in Las Vegas, Nevada. A summary of the scoping process and issues developed from the public and from intra-agency and interagency scoping meetings is in the "Consultation and Coordination" section.

The alternatives presented within this document address the options for dealing with the issues and information gathered during the scoping process. The planning team compiled and reviewed the information discussed at the scoping meetings and determined which issues were compatible with various laws, the National Park Service mission, and the purpose and significance of Mojave National Preserve and were therefore appropriate to be analyzed within this document. The process used to evaluate the scoping information primarily involved sorting the issues into categories. There were five categories:

1) Items that were statements or background information and not issues requiring analysis (for example, the National Park Service might need money or volunteers to maintain trails, the Barstow-Daggett airport needs to be expanded)
2) Issues that were operational and not suitable for discussion in a long term planning document included the need for more maps for the public.
3) Issues not within the National Park Service jurisdiction such as banning military aircraft from NPS units.
4) Issues considered but not suitable for analysis (see Planning Constraints and Mandates and Actions Considered As Alternatives But Rejected).
5) Issues appropriate for this planning effort's analysis and discussion. These last issues are listed below and are described in detail in the alternative sections.

PLANNING PROCESS

Once the planning team identified those issues that could be addressed, the team took the following steps:

- became familiar with the planning area and its resources through the literature and tours of the planning area

- began development of a GIS database to be used in mapping and analyzing various factors
- resolved and developed the formats for the documents
- developed the NPS units' significance and purposes statements
- held open houses for BLM, Death Valley, and Mojave staff to update them on the planning team's progress
- met with local government representatives
- met with Timbisha-Shoshone, Ft. Mohave, Chemehuevi and San Manuel tribal members
- met numerous times with the Mojave National Preserve's Advisory Commission, Death Valley National Park's Advisory Commission, and the BLM Advisory Council
- met with staff of the University of California's Granite Mountains Natural Reserve
- developed the scope and direction for a contracted socioeconomic analysis
- identified the affected environment and described it in a written narrative

With the list of the issues identified, the planning staff developed conceptual alternatives. These concepts were sent to the public in a March 1997 newsletter. In April 1997 the planning staff held public workshops at the same locations as described in the above paragraph (with Bishop, California substituted for Independence). Participants at these workshops discussed the proposed alternatives with the planning team. Following public input, an agency meeting was held in Barstow in May 1997 to gather staff input. This input was used in preparation of this DEIS/GMP for Mojave National Preserve and the DEIS/GMP for Death Valley National Park. The Bureau of Land Management used the previously mentioned input in preparing its draft CDCA plan amendment/DEIS.

After public review of this document a final environmental impact statement (FEIS) will be prepared. A record of decisions will be prepared thirty days after release of the final environmental impact statement announcing the alternative chosen as the agency action. The National Park Service will also prepare stand-alone general management plans and land protection plans that are summary documents of the management direction, uncluttered by alternatives, impacts, and other information required as part of the National Environmental Policy Act process.

ISSUES IDENTIFIED DURING PUBLIC SCOPING

The following list of issues was derived from a series of public meetings throughout the planning area in September 1995 and from written comments received. The list is planning area wide and not specific to Mojave.

Visitor Use and Administration

- The public needs maps showing access, wilderness, desert tortoise critical habitat, land status and hunting areas.
- Careful consideration should be given to visitor service locations, including analysis of the use of private facilities outside NPS boundaries to provide certain visitor services. An evaluation of volunteer use should be included in the plan.

- Anticipate an increase in the Southern California and Las Vegas populations and prepare for increased use of the area while still providing a quality experience for visitors.
- Address policy on pets throughout planning area.

Interpretation

- Identify the anticipated visitors (including foreign tourists) and identify their needs and expectations while visiting the planning area.
- The need for visitor information and interpretation services for visitors on the trains that pass through the Preserve should be evaluated.
- The need for interpretation of significant resources and tours should be evaluated in the plan.

Public Safety, Dumps, and Utility Corridors

- Evaluate adequacy of communications, including emergency phones.
- Address the impacts and regulation of low flying aircraft.
- The scope of law enforcement, fire management and emergency medical services needs to be addressed.
- Address the existing and proposed dumps (e.g. Ward Valley, Yucca Mountain and Baker) in and around the planning area and their possible effects upon area resources.
- Examine the Department of Energy's nuclear waste transportation corridor plans.
- Evaluate a closed dump in Death Valley National Park for possible effects on existing and planned activities.
- Describe plans for future utility corridors within the planning area. If new corridors are planned, then compliance, monitoring and reduction of impacts to adjacent habitat need to be evaluated and discussed.
- Evaluate adequacy of public sanitation facilities.
- Address user fees and discrepancy between fees and costs of public safety activities such as search and rescue and Medivac services.

Socioeconomics

- A socioeconomic study should be conducted. It should, at a minimum, examine development activities within and adjacent to the planning area; examine effects of existing and predicted populations, expected economic benefits and costs; and provide an updated visitor profile.
- Evaluate potential concession operations, including jeep tours that could provide access to many people and a concession/permit system permitting access on closed trails.
- Examine possible land exchanges to consolidate federal lands and recommend boundary adjustments.
- Evaluate the transfer of Providence Mountains State Park to Mojave National Preserve.
- Be cognizant of inholders' concerns that the NPS's management policies and potential increases in visitation will effect inholders' property and lifestyles.
- Evaluate visible light pollution affects on the night sky.

- Structure plan so that phases can be implemented under different funding levels.
- Recommend a system for approving, supervising, and coordinating research activities in the planning area.
- Ensure that each agency's management practices remain faithful to their mission statements.
- The needs of foreign tourists should be understood and accommodated in the planning area.

Mining

- Address impacts from operating and abandoned mines in and near the planning area boundaries, reclamation and revegetation plans, and adequacy of existing mitigation measures.
- Describe how mining plans on valid existing mining claims are processed, with examples of previously approved NPS mining permits.

Springs, Water Rights and Air Quality

- Restoration of numerous springs is needed (e.g. Marl Springs) to make them suitable for wildlife.
- Consider the possible effects of BLM and NPS activities and regional developments (e.g. Stateline and Yucca Mountain) on water quality and quantity and vegetation.
- Address Department of the Interior leadership needed in resolving water issues, including adjudication.
- Address water resource issues (e.g. potential conflict of federal management objectives for Ash Meadows area)
- Address deteriorating air quality within the planning area.

Access

- The plan needs to address the issue of access related to valid existing rights, permitted uses, general recreation and maintenance of facilities such as range improvements, wildlife guzzlers, communications sites, private lands, etc.
- Mojave Road and the Heritage Trail should remain open.
- Clarify and discuss legal and physical requirements for private landowner access to inholdings in the Preserve.
- Consider the deletion, addition, maintenance, paving and overuse of roads throughout the planning area.
- Address possible wilderness boundary modifications to allow vehicle passage through closed sections of the Heritage Trail.
- Address the plans for general aviation and airports in the planning area.
- Consider Amtrak service at Kelso.
- Ivanpah Dry Lake should not be open for vehicles because it is a beautiful area.
- The Death Valley National Park's west side should have more access roads.

Military

- Address concerns about low level military aircraft overflights and fuel dumping by aircraft.
- Discuss impacts of Fort Irwin's proposed expansion on the planning area.

Wilderness, Camping, Non-Motorized Trails and Recreation

- Examine wilderness boundaries and access for possible adjustments.
- Address wilderness management guidelines and regulations regarding the maintenance and installation of big game and small game guzzlers in wilderness areas.
- Non-wilderness areas should remain open for multiple use and alternative areas should be provided for recreation opportunities no longer permitted in wilderness areas.
- Establish firewood and campfire policies.
- Look at campground location, numbers and the policies on group, handicapped, backcountry and roadside camping.
- Address the management policies and clothing optional policy at the Saline Valley Hot Springs (numerous written comments received supporting existing policy).
- Address the adequacy of trailhead parking (especially for wilderness areas), the number and length of trails, the maintenance of trails, and the need for single or multiple trails for bicycles, hikers and equestrians.
- Address various recreation opportunities, including hang-gliding, trail bicycles and rockhounding.
- Consider establishing carrying capacities and a planning area wide permitting system for heavily used areas.
- Address management issues regarding tour buses in the Preserve.

Biological Resources, Hunting and Grazing

- Address the NPS policy regarding guzzlers, recognizing the countless hours of volunteer work to install and maintain them, but also the implications of maintaining populations of wildlife artificially.
- Address possible decline of Death Valley's bighorn sheep and possibility that increased tourism will cause more adverse impacts to sheep and tortoise.
- Examine wild horse and burro management within planning area and each of its subunits and determine appropriate management policies for each area.
- Examine the hunting issue including access, visitor safety, elimination of trapping and non-game hunting and the importance of quail and chukar habitat.
- Address the issue of recreational shooting/plinking in the Preserve.
- Evaluate resource issue conflicts between grazing and wildlife habitat.
- Address grazing levels and long-term grazing management.
- Recognize that dolomite formations host many endemic plants.
- Address the recovery objectives for the desert tortoise established in the recovery plan.
- Recognize Death Valley's two new listed plants and address possible special management needs.

- Consider options for controlling exotic species (tamarisk and others).
- Address impacts of mining on endangered bats.

Cultural Resources and Native Americans

- Address Native American participation in the planning process.
- Consider the Mojave, Chemehuevi, and Timbisha Shoshone tribal values.
- Address cultural resources management issues (e.g. trace trails, rock art, military and mining sites) and establish policies for their preservation, protection, interpretation and appropriateness of revealing their location.
- Examine how parts of the planning area should be managed for their (Native American) spiritual values.
- Address possible hunting/religious conflicts.
- Address whether archeological sites be identified and interpreted for educational value or locations kept secret to protect resources.
- The identification, interpretation and possible restoration of some culturally significant resources (e.g. Tidewater Tonopah Railroad, Death Valley mine structures, military sites, Work Progress Administration guzzler sites, trails, cultural landscapes and Dinosaur Trackway) should be addressed within plan.
- Some cultural elements of the desert should be restored, such as certain features along Historic Route 66.
- Examine the potential use of Kelso Station as a visitor center for the preserve.

PLANNING CONSTRAINTS AND MANDATES

Many planning decisions are limited by existing legal mandates. Endangered species, historical and cultural resources, and clean water and air are some areas in which existing laws can limit planning options. The National Park Service's Organic Act and the 1994 California Desert Protection Act, the enabling legislation for Mojave National Preserve, define the planning parameters and the mission of the National Park Service and Mojave National Preserve in preserving natural resources for the enjoyment of this and future generations. Planning constraints and some of the above laws may appear to conflict. The proposed plan in this document is the planning effort's result in balancing these issues. Below are some specific examples of planning constraints in the CDPA.

- Grazing (sec. 510): The privilege of grazing domestic livestock on lands within the preserve shall continue to be exercised at no more than the current level, subject to applicable laws and NPS regulations.

- Hunting (sec. 506(b)): Hunting, fishing, and trapping will be permitted except in areas or at times for reasons of public safety, administration, or compliance with provisions of applicable law.

- Native American Access (sec. 705): The secretary will ensure access by Indian people for traditional cultural and religious purposes.

- Historical and Cultural Values (2)(b)(1)(C): The preserve will protect and preserve historical and cultural values of the California desert associated with the ancient Indian cultures, patterns of western exploration and settlement, and sites exemplifying the mining, ranching and railroad history of the old West.

- Land Withdrawal, Mining, and Validity (secs. 507, 508, 509): Other than existing valid mining claims (now subject to NPS regulations) no new claims are allowed within the preserve. Before approval of any mining operation plans, claims must be proven valid.

- Research and Education Facilities (secs. 513, 514): Granite Mountains Natural Reserve and Soda Springs Desert Study Center are designated research and educational centers within the preserve.

- Wilderness(sec. 601): Approximately 695,000 acres were designated as wilderness by Congress.

- Access to Private Property (sec. 708): The secretary will provide adequate access to lands or interests in lands not federally owned, which will provide the owner reasonable use and enjoyment.

- Rights-of-Way (sec. 511): Nothing in the CDPA shall have the effect of terminating any validly issued right-of-way or customary operation, maintenance, repair, and replacement activities in such right-of-way issued, granted, or permitted to various utility companies and Molycorp.

- Private lands (sec. 519): Lands not owned by the United States are not subject to regulations that apply only to federal lands. However, application of mineral development regulations (36 CFR Parts 9A and 9B) is not affected by this section.

- Reserved Water Rights (sec. 706): Congress has reserved a quantity of water sufficient to fulfill the purposes of the CDPA.

- Military Overflights (sec. 802): Nothing in CDPA shall restrict or preclude low-level overflights of military aircraft over new units of the national park or wilderness preservation systems (or any additions to existing units) including overflights that can be seen or heard within such units.

In addition to the above examples, the threatened desert tortoise serves as the final example of planning constraints. The U.S. Fish and Wildlife Service prepared a Recovery Plan for the desert tortoise in 1994. In that document, recommendations are presented for the federal land-managing agencies to implement to enhance the desert tortoise's recovery and subsequent removal from the threatened species list. These recommendations have resulted in restrictions on land use planning and activities throughout most of the preserve. Any proposed action that would cause harm to the tortoise or to its habitat is not permitted under the law without appropriate mitigating measures (see appendix E).

ACTIONS CONSIDERED FOR ALTERNATIVES BUT REJECTED

The following are suggestions received during the scoping process, which were considered but not evaluated or developed into alternatives:

1. Banning all grazing from NPS units
2. Banning hunting from Mojave National Preserve
3. Declaring the desert tortoise as a non-threatened species
4. Eliminating or reducing wilderness areas, or allowing motorized vehicles use on routes now in wilderness
5. Providing for a small, corralled herd of burros within NPS units
6. Allowing rock and gem collection
7. RS-2477 route determinations

The planning process was unable to address the first four actions, since to do so would directly violate various laws and be contrary to the goal of developing a management plan that meets the Congressional intent and the National Park Service mission. See the Planning Constraints and Mandates section above for a complete list.

U.S. Fish and Wildlife Service declared the desert tortoise a threatened species in 1990. Delisting the tortoise can only be accomplished by the U.S. Fish and Wildlife Service after evidence suggests that recovery goals have been met.

Wilderness can only be designated or modified by Congress.

The fifth and sixth issues are contrary to NPS policy or regulations. Regarding burros, it has been written policy of the National Park Service since 1920s that the purpose of NPS units does not include duplicating the legitimate function of other institutions in holding and exhibiting wild or domesticated animals for display. NPS policy is clear on the management of exotic species, such as burros, protection of natural resources, and keeping animals confined for display. Keeping a small herd of burros would impact resources and cattle grazing and would be against these policies. Regarding rock hounding, this activity is prohibited by federal regulations (36 CFR 2.1 [1]).

RS-2477 is section 8 of the Mining Act of 1866. It states "The right-of-way for the construction of highways over public lands, not reserved for public uses, is hereby granted." RS-2477 was repealed when the Federal Land Policy and Management Act (FLPMA) was passed on October 21, 1976. However, FLPMA did not terminate any existing "rights-of-way" granted under RS-2477. In 1993, the secretary of the interior issued a moratorium on the consideration of RS-2477 applications by the various agencies of the department. As a result of this moratorium, the National Park Service cannot consider any applications for RS-2477 rights-of-ways.

RELATIONSHIP TO OTHER PLANNING EFFORTS

In preparing this document the NEMO planning team strived to use the best available information and to coordinate with other planning efforts in adjacent areas. The NEMO planning team used the following documents as background information:

- the BLM's 1980 *California Desert Conservation Area Plan* and its environmental impact statement and supporting documents
- the 1989 Death Valley National Monument *General Management Plan* and its 1994 Resource Management Plan
- the BLM's 1994 *Las Vegas Resource Area Resource Management Plan*
- the U.S. Forest Service's 1996 *Spring Mountains National Recreation Area Plan*
- the BLM's 1997 *Environmental Impact Statement* for the proposed land acquisition by Army National Training Center at Fort Irwin
- BLM's East Mojave Scenic Area plan

The NEMO planning team has also worked closely with the other planning efforts, including the Bureau of Land Management's West Mojave Plan and Northern and Eastern Colorado Coordinated Planning Effort. Descriptions of these efforts follow:

WEST MOJAVE PLAN

The West Mojave Plan is a multiagency planning effort involving the Bureau of Land Management, the U.S. Fish and Wildlife Service, the California Department of Fish and Game (CDF&G), and local governments. The West Mojave Plan is developing habitat management alternatives that will recommend amendments to the BLM's *California Desert Conservation Area Plan*. It is intended to provide for continued use and development within a 9.4-million-acre area of the western Mojave Desert of southern California in a manner that will ensure conservation of listed plant and animal species and minimize impacts on critical portions of their supporting habitats. The area extends from Olancha on the north to the San Gabriel and San Bernardino Mountains on the south, and from Antelope Valley on the west to Twentynine Palms on the east. This planning area and NEMO share the same, respectively, eastern and western boundary.

The goals of the West Mojave Plan are to provide recovery of federally listed and state-listed plant and animal species as viable wild populations, to conserve critical elements of supporting habitats, to allow resource use and community expansion, and to simplify and reduce the regulatory burden of permitting processes for projects on public and private lands.

Two species that are especially targeted for management protection by this plan are the desert tortoise (*Gopherus agassizii*) and the Mohave ground squirrel (*Spermophilus mohavensis*).

The West Mojave plan report is still in the draft preparation stage, and details of the proposed or preferred amendments to the *California Desert Conservation Area Plan* are not yet available.

NORTHERN AND EASTERN COLORADO DESERT COORDINATED MANAGEMENT PLAN

This planning area is a 5.5 million-acre area that is south of the NEMO planning area. The following description of this planning effort is from the *Northern and Eastern Colorado Desert Coordinated Management Plan: Preparation Guide* prepared by the Bureau of Land Management in 1994.

> The primary purpose of this plan is to provide for the recovery of the threatened Desert Tortoise that was listed as a threatened species by the U.S. Fish and Wildlife Service in 1990...The plan will implement the requirements of the U.S. Fish and Wildlife Service's Recovery Plan. The purpose is also to address management of the diversity of all plants and wildlife in ecosystem principles. This focus will address all plants and animals in a systems context (habitats) and selected species (i.e., about 30 flagship and special status species) in particular. Land users and managers will benefit through resolution of land use conflicts in a regional context and more efficient and consistent project review and processing.
>
> The plan will set standards for managing desert tortoise, other special status species, and habitats within the planning area by defining zones and management prescriptions within and by which they will be managed indefinitely for their individual and interdependent qualities. Zones will also be identified for which Biodiversity values will not receive priority emphasis over other resource management programs. Routes of travel across public lands will be designated as open, closed or limited.
>
> The final plan will function as a habitat management plan and will also amend the 1980 *California Desert Conservation Area Plan*.

LAS VEGAS RESOURCE MANAGEMENT PLAN

The *Stateline Resource Area Draft Resource Management Plan/Environmental Impact Statement* was released in 1992. Since then, the BLM renamed the Stateline Resource Area as the Las Vegas Field Office. The final EIS, entitled *Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement* was released in May 1998. This plan provides management guidance for about 3.7 million acres of public land administered by the Bureau of Land Management in the Las Vegas Field Area. The plan focuses on six management issues: land tenure, desert tortoise, mineral development, off-road vehicle use, special management area, areas of critical environmental concern (ACECs), and utility corridors.

SPRING MOUNTAINS NATIONAL RECREATION AREA PLAN

In 1996 the final management plan was prepared for Spring Mountains National Recreation Area (SMNRA). This plan, which amended the *Toiyabe National Forest Land and Resource Management Plan,* resulted in the following actions:

- unified management direction for the SMNRA under a single plan
- identified lands suitable for recreation development, mining, and other uses
- recommend changes in special area designations (wilderness, research natural areas, and scenic byways)
- established a SMNRA monitoring and evaluation program
- developed new management prescriptions and established two new management areas

FORT IRWIN PROPOSED LAND ACQUISITION

The proposed action is for more than 330,000 acres of lands north and west of the training center to be acquired for the National Training Center, Fort Irwin, California. These lands would be for the exclusive military use for force-on-force training of armored and mechanized brigades. Other alternatives call for variations of the proposed action and for the acquisition of lands to the east and south of Fort Irwin. The area needed for these alternatives range from about 180,000 acres to over 260,000 acres. Fort Irwin is adjacent to the NEMO planning area. Significant impacts on public access, visual aesthetics, air quality, soils, vegetation, wildlife, cultural resources, land use, wilderness quality, and transportation were analyzed in the EIS prepared for this action by the Bureau of Land Management.

WARD VALLEY (NUCLEAR DUMP) LOW LEVEL RADIOACTIVE WASTE DISPOSAL SITE

The Ward Valley Project south of I-40 and Mojave National Preserve near the California–Nevada Border and about 25 miles west of Needles, California, is proposed as a storage site for subsurface-level radioactive waste. This project has been approved by the state of California and awaits the federal government's final approval.

Under the Low-Level Radioactive Waste (LLRW) Policy Act of 1980, the state is responsible for licensing a private company to develop and operate the facility. U.S. Ecology, Inc., as license-designee, is proposing an LLRW facility at Ward Valley.

The 1,000-acre site is on BLM-managed federal land. The project would consist of a 90-acre disposal and support facilities area, a roadway, and a utility corridor. The rest of the area is intended as a buffer zone. As part of the action, property ownership would be transferred from the Bureau of Land Management to the State of California.

The proposed project would provide for the permanent disposal of low-level radioactive waste, including radionuclides with short half-lives. These wastes would be disposed of in containers placed in trenches and covered with soil. No hazardous wastes, hazardous low-level radioactive waste, high-level radioactive wastes, or nuclear weapons-related wastes would be accepted. It is expected that the project would receive low-level radioactive waste generated from four states for a period of 30 years, after which the site would close. After closure, the State of California would maintain the site for a period of 100 years. A final environmental impact report / environmental impact statement has been prepared for this project (Dames & Moore, 1991).

Because of this proposed facility's location near Needles, it is expected that construction workers and some supplies and equipment would come from Needles. During operations, the number of LLRW truck shipments coming through Barstow would average about 13 (26 round trips) per week.

CASTLE MOUNTAIN PROPOSED MINE EXPANSION

Viceroy Gold Corporation, the operator of Castle Mountain Mine, which is adjacent to the eastern boundary of the preserve, proposes to expand its mining operation by increasing areas of open-pit mining, creating an overburden storage site, and expanding the existing heap leach pad by 485 acres. Back-filling of the mine pits is proposed on about 158 acres. The mine operating period would be extended 10 years past the currently permitted time, to the year 2010. Mining and processing methods and rates would not change. However, the operator proposes to reduce the frequency of monitoring wells from draw-downs due to the mining operations. At the conclusion of mining operations, the total surface area disturbed would be 1,375 acres.

MOLYCORP INC. PROPOSED MINE EXPANSION AND HAZARDOUS SPILL STATUS

Two projects involving Molycorp Inc., a subsidiary of UNOCAL, are occurring adjacent to the Preserve boundary. An environmental impact report/environmental impact statement for a proposed mining operation expansion is currently being prepared. Molycorp mine is located at Mountain Pass, California, along I-15 adjacent to Mojave National Preserve.

Besides the proposed mine expansion, between July and August of 1996, an estimated 230,000 gallons of pipe scale and waste effluents were released at nine separate locations along the 14-mile-long waste pipeline that runs through Mojave National Preserve and the BLM Needles Resource Area. The releases were associated with the pigging (cleaning) of the pipeline. The pipeline runs from a lanthanide rare earth mining/processing plant in Mountain Pass, California, to Ivanpah Dry Lake Bed near the California–Nevada state line adjacent to I-15. The product released from the pipeline, which is owned and maintained by Molycorp, contains radioactive radium, thorium, and uranium, as well as lead and arsenic.

The releases occurred in critical habitat for the threatened desert tortoise. The cleanup was being managed under a unified command by an interagency type II incident management team. Among the agency representatives to the team are personnel from the California Department of Fish and Game, which has jurisdiction over the coordination of hazardous materials incidents in California. Other cooperating agencies are the California Department of Health Service's Radiological Health Branch and Department of Toxic Substances Control, the regional water quality board, and the county fire and hazardous materials department. Costs to date are estimated to be $3 million; they will probably reach $7 million by the time the cleanup is completed. To date, 56 tortoises have been relocated from the incident site, and more than 20,000 feet of tortoise exclusion fencing has been installed. The removal of the release materials is critical to maintaining the quality of the aquifer and preventing further dispersal by wind.

AT&T COAXIAL CABLE REMOVAL PROJECT

AT&T owns and maintains about 709 miles of coaxial communications cable and associated equipment between Socorro, New Mexico, and Mojave, California. This cable runs through the entire width of Mojave National Preserve. This system consists of a coaxial cable, repeater huts, manholes, cable marker posts, and other electronic equipment. AT&T proposes to remove about 220 miles of the above-mentioned system. Construction activities are expected to start in August and will take about five months to complete. A *Draft Environmental Impact Statement* on this project was released for public review in December 1997 and the *Final Environmental Impact Statement* was released in May 1998.

FUTURE PLANNING EFFORTS

As a result of efforts made to date, additional NPS planning documents have been identified as being needed to supply detailed information for specific topics. Additional planning efforts that may be undertaken over the next ten years include:

- interpretive plan
- resource management plan
- water resource management plan
- fire management plan
- road management plan
- grazing management plan
- maintenance management plan
- backcountry/wilderness management plan
- communication management plan
- fee study plan
- development concept plan for Hole-in-the-Wall
- inventorying and monitoring plan
- cave management plan
- development concept plan for Soda Springs

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

OVERVIEW OF ALTERNATIVES

This section discusses the way the National Park Service manages each resource or issue, and delineates a range of reasonable and feasible actions that could be taken. The no-action alternative is commonly referred to as the status quo alternative, since this is what would occur if no further agency action was taken. The range of alternatives identified includes actions that could reasonably be implemented given the legislative and legal constraints under which the National Park Service operates. It includes management proposals that are part of existing plans but may not have been implemented yet. The alternatives are structured such that alternative 1 provides a full description of all actions, while the others refer to alternative 1 or the no-action alternative, presenting only the actions that are different. Issues are presented on the subjects of natural resources, cultural resources, Native American interests, visitor use, services and facilities, roads and circulation, administrative operations and facilities, education and research centers, land ownership and use, and plan implementation.

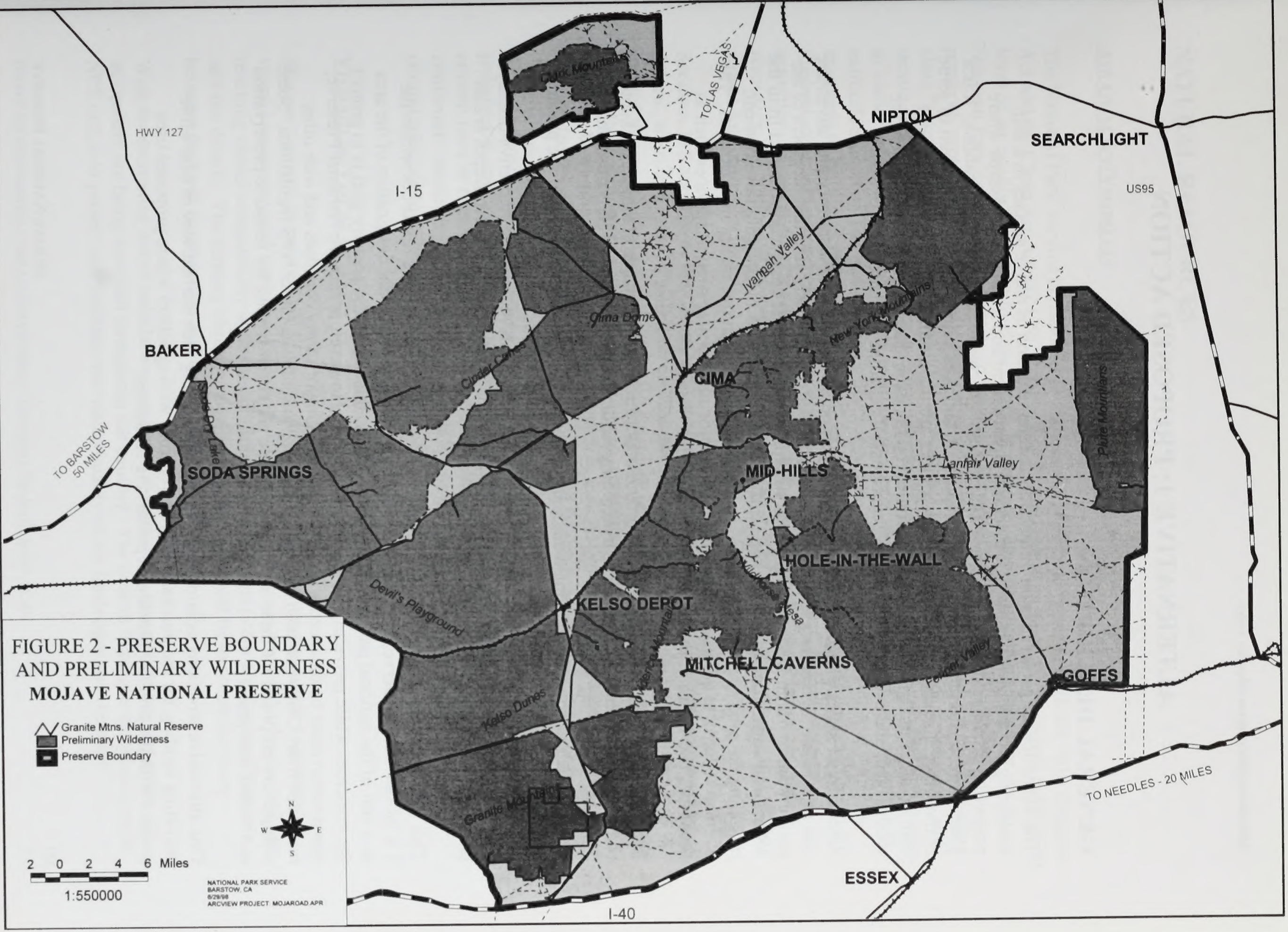


FIGURE 2 - PRESERVE BOUNDARY AND PRELIMINARY WILDERNESS
MOJAVE NATIONAL PRESERVE

NATIONAL PARK SERVICE
BARSTOW, CA
6/29/98
ARCVIEW PROJECT: MOJAROAD APR

ALTERNATIVE 1: PROPOSED ACTION

GENERAL DESCRIPTION

The vision for the preserve is the protection and perpetuation of native species in a self-sustaining environment. Mojave is a natural environment and a cultural landscape where protection of native desert ecosystems and processes is ensured for future generations. It is a place where historical use of the land is apparent, and preservation and interpretation of some of those key historic and archeological resources are important for public education and enjoyment. Education and research activities on the natural and cultural environment are encouraged, and access by all people, regardless of capability, is ensured.

Alternative 1 seeks to manage the preserve to perpetuate the sense of discovery and adventure that now exists. Responses to public meetings and letters have indicated that members of the public want to minimize the development of typical NPS facilities that would detract from the setting and sense of discovery that currently exists. This means minimizing development, including the proliferation of signs, new campgrounds and outdoor interpretive exhibits. This alternative looks to adjacent communities to provide most visitor support services such as food, gas, and lodging.

This alternative also seeks to offer maximum opportunities for roadside camping, backcountry camping, and access to the preserve by existing roads consistent with the NPS mission.

This alternative provides for a museum and interpretive facility in the middle of the preserve at the Kelso Depot. The National Park Service proposes to seek funding for the complete historic restoration of the depot and its use for visitor services, including interpretive displays. Operation of a small food service concession in the old Beanery cafe in Kelso Depot is also proposed.

This alternative also brings the NPS mission to the management of the resources within the 1.6 million-acre preserve, in accordance with the 1994 Congressional designation of the area as a unit of the national park system. Stated simply, this means the primary goal is to protect the resources while providing for visitor enjoyment. However, at Mojave National Preserve, this mission must be balanced with the existence of major utility corridors and with other mandates from Congress, such as grazing, hunting, and mining under NPS regulations. Some changes are proposed for these activities, with the goal of providing for resource preservation and visitor enjoyment.

This alternative envisions existing landowners maintaining their current way of life, while providing funding for the purchase of property from willing sellers where proposed uses conflict with the primary mission of preserving resources.

NATURAL RESOURCES

AIR QUALITY/VISIBILITY

The National Park Service is responsible for protecting air quality under both the 1916 Organic Act and the Clean Air Act (42 USC 7401 et seq.). Although the Clean Air Act gives the highest level of air quality protection to class I areas, it also provides many opportunities for the National Park Service to participate in the development of pollution control programs to preserve, protect, and enhance the air quality of all units of the national park system, including class II areas. The National Park Service would seek class I designation for the preserve and would seek to perpetuate the best possible air quality in parks because of its critical importance to visitor enjoyment, human health, scenic vistas, and the preservation of natural systems and cultural resources. The National Park Service would work toward promoting and pursuing measures to safeguard these values from air pollution's adverse effects and would strive to set the best example for others to follow in all the agency's development and management activities. In cases of doubt as to the effects of existing or potential air pollution on park resources, the National Park Service would err on the side of protecting air quality and related values for future generations.

Sections 118 and 176 of the Clean Air Act require federal agencies and facilities to meet all federal, state, and local air pollution control laws and regulations. If units or facilities are located in areas that do not meet federal or state air pollution control standards (nonattainment areas), those units or facilities must conform to requirements established to attain and maintain those standards. The requirements may include provisions to reduce emissions from existing facilities and limit emissions from proposed facilities on a greater than 1:1 basis.

Since Mojave is located in a non-attainment area for one or more air pollutant, no action proposed in any alternative in this plan will lead to violations of federal or state air pollution control laws or regulations, and no-action would increase emissions or violate the state conformity requirements. The preserve's staff would work with appropriate air pollution control officials to ensure compliance with all requirements.

VIEWSHEDS/VISUAL QUALITY

Mojave National Preserve would prepare guidelines for the built environment to establish visual consistency and themes in facility development. Guidelines would also be created for reaching visual compatibility with surrounding landscapes, significant architectural features, and site details. The primary objective of these guidelines would be to create harmony between the built environment and the natural environment.

With the increasing use of cellular communication equipment, more antennas and relay equipment are being installed throughout the country. The overall management goal of each NPS unit is to protect and maintain the visual quality of the landscape and the built environment. To help achieve this goal, a communication management plan would be prepared that would address the NPS goals and the need to establish sites for communication equipment. No new permits would be issued until the completion of such a plan. The plan would include the following requirements:

- All above-ground communication equipment must not distract from the visual quality of the scenery.
- Each new proposal for radio or cellular antennas or towers must demonstrate that the equipment would provide a critical service for visitors and NPS staff and is not duplicative.
- The installation of new equipment outside the preserve or on existing communication towers or at defined sites must be considered before the construction of new sites is considered.
- New locations would be reviewed through the environmental assessment process which must consider impacts on the visual quality of the scenery.

The National Park Service would work with neighboring landowners on topics of mutual interest being sensitive to the influences and effects that park management might have on adjacent landowners. The National Park Service would seek to enhance beneficial effects and to mitigate adverse effects in ways consistent with its policies and management objectives. The agency would encourage compatible adjacent land uses and seek to mitigate potential adverse effects on park values by actively participating in planning and regulatory processes of neighboring jurisdictions, other federal, state, and local agencies, and Native Americans.

NIGHT SKY

The National Park Service would cooperate with neighbors and local government agencies to seek to minimize artificial light intrusion, recognizing the part that darkness and the night sky play in the overall visitor experience. The National Park Service would strive to set the best example in all developments that involve the use of artificial outdoor lighting, ensuring that such lighting is limited to basic safety requirements and shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky. Baseline light measurements would be established to monitor changes over time.

NOISE AND OVERFLIGHTS

The National Park Service would strive to preserve the natural quiet and sounds associated with the physical and biological resources of Mojave. Activities causing excessive or unnecessary sounds in or adjacent to parks, including low-level aircraft overflights, would be monitored, and action would be taken to prevent or minimize unnatural sounds adversely affecting park resources and values or visitor enjoyment. The National Park Service would collaborate with the Department of Defense (DOD) to minimize impacts on visitors and resources from military overflights, as authorized by sec. 802 of the California Desert Protection Act.

WATER RESOURCES

Water for the preservation, management, development, and use of the preserve's water system would be obtained and used in accordance with legal authority and with due consideration for the needs of other water users. Should the National Park Service seek to acquire private land within its boundaries, the essential water rights attached to those lands would also be sought for acquisition. Water would be used efficiently and frugally. The National Park Service would seek to protect, perpetuate, and possibly restore surface water and groundwater as integral components of park aquatic and terrestrial ecosystems. Surface water and groundwater withdrawn for the public use would be the minimum amount necessary to achieve preserve purposes. All water withdrawn for domestic use would be returned watershed system once it has been treated to ensure that there would be no impairment of preserve resources. Interbasin transfers would be avoided. The effects to the preserve's resources from water withdrawn from sources outside of the preserve (for example, developments at Primm and mining activities at the Molycorp mine at Mountain Pass) would be monitored. If adverse effects were found, the National Park Service would take all legal and appropriate steps necessary to protect natural resources from the effects attributed to such activities.

Pursuant to Congressional direction in the California Desert Protection Act, Mojave National Preserve would seek to restore, maintain, or enhance the quality of all surface and ground waters within the preserve consistent with the Clean Water Act (33 USC et seq.) and other applicable federal, state, and local laws and regulations.

Floodplain and Wetland Areas

The occupancy and modification of floodplain and wetland areas would be avoided wherever possible. Where no practicable alternatives exist, mitigating measures would be implemented to minimize potential harm to life, property, and the natural floodplain and wetland values. Management of floodplain and wetland areas is subject to the provisions of Executive Order 11988, " Floodplain Management" (42 USC 4321), Executive Order 11990, "Protection of Wetlands" (42 USC 4321), and the Rivers and Harbors Act (33 USC 401 et. seq.), and section 404 of the Clean Water Act (33 USC 1344).

Water Developments

The National Park Service would examine the use of and need for all guzzlers, livestock tanks, and troughs (hereafter referred to as developed water sites). Water at developed water sites would be retained for native plants and wildlife if it was found to be needed to replace water lost due to actions taken by previous human activities. These developed water sites would be retained to allow native populations of plants and animals to return to or remain at a previously disturbed population level. Simultaneously, with the retention of these developed water sites, the National Park Service would actively begin to restore natural water sources to be self-sustaining. When a water source became self-sustaining, the artificial facility would be removed. Motorized access to guzzlers in wilderness areas (to maintain guzzlers or replenish water) would be reviewed individually.

Water is necessary for livestock grazing on NPS lands. The amount of water that would be diverted or used for livestock would be maintained for the animals' health. If and when animal unit months (AUMs) were reduced (no increase in AUMs would be allowed under the CDPA) a concurrent reduction in water used for livestock purposes would be expected. The National Park Service would examine these developed water facilities and take action to restore natural waters. If the water rights are not owned by the National Park Service, the agency would work with the owners to encourage them to consider the benefits of natural water restoration.

Water Rights

The California Desert Protection Act of 1994 (CDPA) in section 706(a), with respect to each wilderness area, reserves a quantity of water sufficient to fulfill the purposes of the act. Section 706(b) mandates that the secretary of the interior and all other officers of the United States take "all steps necessary to protect the rights reserved by this section." Federal reserved rights generally arise from the purposes for the reservation of land by the federal government. When the government reserves land for a particular purpose, it also reserves, explicitly or by implication, enough unappropriated water at the time of the reservation as is necessary to accomplish the purposes for which Congress or the president authorized the land to be reserved, without regard to the limitations of state law. The rights vest as of the date of the reservation, whether or not the water is actually put to use, and are superior to the rights of those who commence the use of water after the reservation date. General adjudications are the means by which the federal government claims its reserved water rights. The McCarran Amendment (66 Stat. 560, 43 U.S.C. 666, June 10, 1952) provides the mechanism by which the United States, when properly joined, consents to be a defendant in a suit to adjudicate water rights. The precise nature and extent of the National Park Service's water rights probably will remain uncertain until the United States is joined in an adjudication, the Department of Justice files claims to water rights on behalf of the National Park Service, and the court decrees the United States. Hence, it is the responsibility of both the National Park Service and the Bureau of Land Management to protect the reserved water rights established under the CDPA and other applicable federal authorities.

The National Park Service in its general planning process for each unit of the national park system and the Bureau of Land Management in its planning process for each wilderness area have jointly agreed to incorporate their respective policies, guidelines, and administrative procedures and apply the following principles to discharge their responsibilities under section 706 of the CDPA to manage and protect federal reserved water rights (Desert Managers Group 1995):

- inventory all water sources within the boundaries of the wilderness area/park unit
- identify as a federally reserved water right all unappropriated water from any water source identified on federal lands within the boundaries of designated wilderness and/or park areas in the California Desert
- share water source inventory data
- jointly request from the California Division of Water Rights notification of any filing for appropriated water rights within or adjacent to the boundaries of BLM wilderness or units of the national park system

- vigorously defend federally reserved water rights through the state of California administrative process and, if necessary, seek judicial remedy in the appropriate courts
- quantify the amount of water reserved to fulfill the purpose of the reservation as part of any adjudication in California in which the United States may be joined under the McCarran Amendment
- where necessary, pursue acquisition of any existing nonfederal appropriated water right within their respective jurisdictions
- because use of percolating groundwater does not require a permit from the state of California, participate in local government proceedings that authorize nonfederal parties to withdraw percolating groundwater where such withdrawals may impact water sources within their respective jurisdictions to which federally reserved water rights are attached
- participate in any proceedings pursuant to Nevada state water law that may authorize withdrawal of groundwater where such withdrawal may impact water sources within their jurisdictions to which federally reserved or appropriated water rights are attached

SENSITIVE SPECIES

The National Park Service would identify and promote the conservation of all federally listed or proposed threatened or endangered species and their critical habitats in ways that were consistent with the purposes of the Endangered Species Act (16USC 1531 et seq.). (See appendix D). As necessary, the National Park Service would control visitor access to and use of critical habitats and might limit access to especially sensitive areas. Active management programs would be conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystems on which they depend.

The National Park Service would also identify all state and locally listed threatened, endangered, rare, declining, sensitive, or candidate species that are native to and present in the preserve, as well as their critical habitats. Controlling access to critical habitats or conducting active management programs might be considered that would be similar to activities conducted to perpetuate the natural distribution and abundance of federally listed species. Plant and animal species considered rare or unique to the preserve would be identified and their distribution mapped. All management actions for protection and perpetuation of special status species would be determined through the preserve's resource management plan.

The National Park Service would develop collaborative partnerships with federal, state, and local agencies that manage lands adjacent to Mojave National Preserve and with academic institutions with research capabilities in desert ecology or ecosystem management.

A cooperative agreement between the National Park Service and California State University (CSU) would identify management objectives and strategies for maintaining the Mohave tui chub population (such as cattail and other aquatic plant removal and dredging of the pond). The University maintains a population of the Mohave tui chub in small artificial ponds at the Soda Springs Desert Studies Center.

Desert Tortoise

The objective of this alternative is the delisting of the desert tortoise following recovery of the Mojave population. NPS management direction is for multiple species and protection of habitats for all native species. This alternative is directly linked with the grazing, burro management, hunting, and camping alternatives presented elsewhere in the alternatives section (see those discussions for details). The National Park Service would not propose that any particular area of the preserve be set aside under any special category for the desert tortoise. Instead it would implement the following measures throughout the preserve:

- vehicles use only on existing roads
- no competitive events that would adversely affect the desert tortoise; organized events might be acceptable on existing roads with appropriate restrictions
- no new landfills; close and reclaim existing ones
- no dumping or littering; manage trash to eliminate raven access and perches
- no agricultural clearing or commercial vegetation harvest on public lands
- no surface disturbance on public lands unless balanced with appropriate replacement lands for mitigation
- place strict limits on research in critical habitat that might adversely affect the desert tortoise
- remove all feral burros
- no plinking (random target shooting)
- big game and upland game bird hunting only during designated State seasons
- dogs must be on a leash (or under physical or voice control of owner if used for hunting)
- analyze use of seasonal speed limits on certain routes
- build no new roads
- develop partnership with California Department of Transportation and San Bernardino County to evaluate tortoise population movements and tortoise mortality over Interstate Highways 15 and 40 and on paved roads in the preserve and to develop necessary mitigating measures
- implement temporary closure of certain dirt roads and routes as needed to reduce access where human-caused tortoise mortality is identified
- eliminate unnecessary rights-of-way and easements – minimum maintenance; fence and/or install culverts along roads with heavy mortality or frequent sightings of live animals, if research proves fences to be effective to the desert tortoise population's health
- no collecting of wild or release of captive desert tortoises
- establish active restoration program for disturbed areas with appropriate compliance
- make acquisition of areas of prime desert tortoise habitat a high priority
- implement extensive interpretation, site bulletins, displays in the information and visitor centers and education in local schools relative to desert tortoise
- use minimum-impact fire suppression techniques in critical habitat, followed immediately by restoration of disturbed areas
- conduct research on impact of fire on the desert tortoise
- monitor and evaluate effects of limiting parking and camping to designated sites only

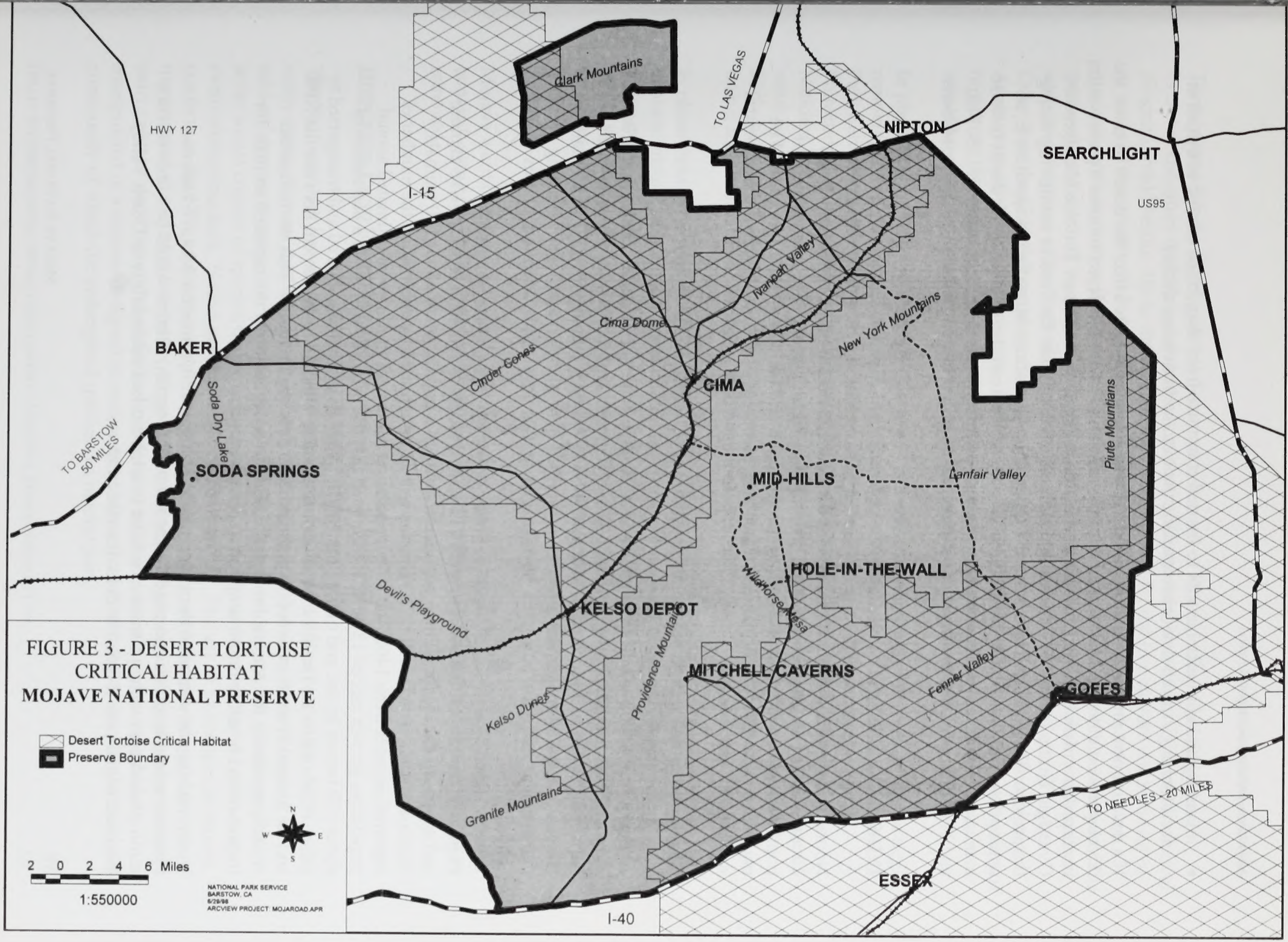


FIGURE 3 - DESERT TORTOISE CRITICAL HABITAT
MOJAVE NATIONAL PRESERVE

NATIONAL PARK SERVICE
BARSTOW, CA
6/29/98
ARCVIEW PROJECT: MOJAROAD.APR

- inventory and eliminate hazards to the desert tortoise from abandoned mining activities or facilities (e.g., install devices to exclude the tortoise from mine shafts)

If a development project proposed on federal land would adversely affect the desert tortoise, the developer would be required to purchase equivalent habitat for the desert tortoise's preservation in accordance with the compensation formula established by the Desert Tortoise Management Oversight Group. Some activities might be required to provide for tortoise monitoring during the project. The National Park Service would apply stipulations identified in appendix E, as appropriate, for all activities permitted in areas where potential encounters with desert tortoise may occur. Mojave would continually evaluate ongoing research and consult with U.S. Fish and Wildlife Service to modify these stipulations to reflect current research recommendations.

INTRODUCED SPECIES

Nonnative plants and animals would not be introduced except under the most unusual circumstances (i.e. historic landscape restoration at Kelso Depot). The management of populations of exotic plant and animal species, up to and including eradication, would be undertaken wherever such species threaten park resources or public health and when control was prudent and feasible.

Burros

A "no burro" policy would be established at Mojave National Preserve. Before initiating this proposed burro removal program, the Mojave National Preserve will continue to manage the burro population as described in Alternative two, existing management. 130 animals is the Bureau of Land Management's former prescribed herd management level. Existing preserve management calls for burros to be managed at that level until adoption of this proposed action.

Presently, the Mojave National Preserve is in the process of reducing (through live-capture and adoption) the existing burro population down to a population of about 130 animals. (Estimating when there will be 130 burros will be determined by subtracting the number of captured animals from 1400, the 1995 population survey result, times an estimated annual population growth rate of 15%. It is estimated that the preserve will reach a population of about 130 burros by the end of the year 2000). Animals are being captured and transported to either BLM or private facilities for adoption. A memorandum of agreement between the NPS and an Animal Protection Group is in the process of being finalized. This memorandum would provide for the Animal Protection Group to accept some of the captured animals for their care and possible future adoption to private parties.

Upon reaching the estimated burro population of about 130 burros the Mojave National Preserve would begin this proposed burro removal program. Burros would be removed via a multi-phased approach in a manner similar to what worked successfully in Death Valley National Monument (NPS, 1982) as described below.

Thirty days after the signing of this document's Record of Decision for Mojave National Preserve and when the burro population is at about 130 animals, phase one of the burro removal program would begin. Up to three years would be allowed for the live capture and removal of as many of the preserve's burros possible. Capture techniques would include two primary methods, enticing burros into corrals and herding using wranglers and possibly helicopters. The captured burros would be adopted through existing BLM facilities or through direct or indirect adoption programs of the National Park Service, or adoption by the efforts of a third party. Other than the Clark Mountain portion of the Mojave Preserve, no BLM Herd Management Areas exist adjacent to the Preserve. NPS would work with BLM to maintain this buffer area of no burros. Fencing the natural springs or the preserve boundary located on Clark Mountain would be evaluated to control burro access to this portion of the preserve.

In phase two the National Park Service would actively solicit animal protection groups to begin removing the remaining few animals. An agreement would be signed between the National Park Service and the group and it would provide up to 2 years for the interested Animal Protection Group to remove the remaining burros from the preserve at their expense. The National Park Service would provide oversight, possibly some logistics support and the use of some equipment and corrals. It is anticipated that most of the estimated 130 burros would likely be captured and removed through phases one and two. If no animal protection group is found, the National Park Service would begin phase three.

In phase three NPS staff would be permitted to eliminate the remaining few animals in a humane manner to achieve a zero population. This action would occur only when desert tortoises are not active above ground. By timing operations in this manner, juvenile tortoises would not be subject to predation by ravens, which are likely to congregate near burro carcasses. Phase Three would continue for an indefinite time.

Tamarisk

Mojave would continue to identify and remove non-native tamarisk (*T. ramossisima*). Planted tamarisk along the Union Pacific railroad corridor are not considered a threat and would not be removed.

DISTURBED LAND RESTORATION

The National Park Service would seek to perpetuate native plant life as part of natural ecosystems. Natural landscapes and plants would be manipulated only when necessary to achieve approved management objectives. To the maximum extent possible, plantings in all areas would consist of species native to the park or historically appropriate for the period or event commemorated. Native species would be emphasized. The use of exotic species would conform to the NPS exotic species policy (NPS 1988). Landscapes and plants might be manipulated to maintain habitat for threatened or endangered species, but in natural areas, only native plants could be used if additional plantings were done. Existing plants would be manipulated in a manner designed to restore or enhance the functioning of the plant and animal community of which the endangered species is a natural part.

In natural areas landscape conditions caused by natural phenomena such as landslides, earthquakes, floods, and natural fires would not be modified unless required for public safety, protection of NPS facilities, or necessary reconstruction of dispersed-use facilities, such as trails. Terrain and plants could be manipulated where necessary to restore natural conditions on lands altered by human activity.

In cultural areas such as at Kelso Depot, trees, other plants, and landscape features would be managed to reflect the historical designed landscape or the historical scene associated with a significant historical theme or activity.

NATIVE SPECIES RESTORATION

The National Park Service would strive to restore native species wherever all of the following criteria could be met:

- Adequate habitat to support the species either exists or can reasonably be restored in the park and if necessary on adjacent lands and waters, and once a natural population level is achieved, it can be self-perpetuating.
- Based on an effective management plan, the species does not pose a threat to the safety of visitors, park resources, or persons or property outside park boundaries.
- The subspecies used in restoration most nearly approximates the extirpated subspecies or race.
- The species disappeared, or was substantially diminished, as a direct or indirect result of human-induced change to the species population or to the ecosystem (NPS 1988).

FIRE MANAGEMENT

Although the National Park Service recognizes the natural role of fire in ecosystems processes, the effects of fire on components of desert ecosystems are not well understood. The National Park Service is assessing and documenting the state of existing fire effects research in desert ecosystems and formulating a desert fire management strategy. Unit-specific fire management plans would be developed consistent with this policy. Over the short term (1–10 years) the fire management policy would be guided by the best available scientific knowledge of fire effects and by current NPS policy direction. A number of changes would be implemented with regard to agency-wide fire management policy. Managerial decisions regarding suppression versus monitored free-burning wildfire would be made based on criteria such as fire location, available suppression resources, vegetation and wildlife concerns, management objectives, archeological and cultural considerations, and a number of other variables. Research burns might be initiated within specific prescriptions, and burn sites would be monitored to assess changes over time.

In cooperation with other desert parks, other federal and state land managers, and the research staff in the agency or at universities, fire-related research needs would be identified and long-term studies initiated. Specific research topics might include effects on desert tortoise, postfire successional trends, or effective postfire disturbance rehabilitation strategies.

PALEONTOLOGICAL RESOURCES

Little paleontological research has been initiated or funded by the National Park Service. Most is accomplished by outside institutions that request and receive NPS research permits. The institutions, in exchange for the opportunity to excavate and study NPS resources, agree to provide information that the National Park Service can use to develop strategies for resource protection, management, and interpretation.

Paleontological resources, including both organic and mineralized remains in body or trace form, would be protected, preserved, and developed for public enjoyment, interpretation, and scientific research in accordance with park management objectives and approved resource management plans. Although paleontological research by the academic community would be encouraged and facilitated under research permits subject to NPS management criteria, the National Park Service would enhance its own knowledge of paleontological resources through comprehensive inventory and monitoring programs. To enhance the conservation and management of paleontological resources, the National Park Service would seek to develop collaborative partnerships with government agencies, academic institutions, and public and private organizations with paleontological resource management or research capabilities/ expertise. Management actions would be taken to prevent illegal collecting. Actions also might be taken to prevent damage from natural processes such as erosion. Protection could include construction of shelters over specimens for interpretation in situ, stabilization in the field, or collecting, preparing, and placing of specimens in museum collections. The localities and geologic settings of specimens would be adequately documented when specimens were collected.

CAVE RESOURCES

NPS *Management Policies* (1988) provide that caves be managed to perpetuate their atmospheric, geologic, biological, ecological, and cultural resources in accordance with approved cave management plans. Natural drainage patterns, air flows, and plant and animal communities are to be protected. In general, the NPS management direction is to avoid development of caves and to perpetuate natural conditions, while seeking to protect the resource. Where significant cave resources exist, a cave management program should be developed which would include:

Interpretive Program
Visitor Safety
Cave Protection Guidelines
Cave Restoration Program

Trail and lighting System Maintenance
Cave Zoning Classification System
Safety and Health Guidelines
Cave Geographic Information System
Inventory System and Guidelines

The National Park Service would continue to work cooperatively with the California Department of Parks and Recreation to inventory, study and protect the significant cave resources that are found at Providence Mountains State Recreation Area.

INVENTORY AND MONITORING

Inventorying and monitoring the preserve's natural resources are necessary to gain a more complete understanding of their value and condition. Mojave National Preserve would consult with people with expertise in the resource or in developing and implementing an inventorying and monitoring program. A comprehensive strategy would be developed and implemented to ensure that regional, local or national trends are documented and appropriate actions undertaken.

CULTURAL RESOURCES

The National Park Service would develop and implement a systematic, integrated program to identify, inventory, monitor, evaluate, and nominate archeological sites, historic properties, cultural landscapes, and ethnographic resources to the National Register and would manage, protect, and preserve such listed properties in a way that would preserve their documented archeological, architectural, ethnographic, historic, or research values. The program, which would protect the documented values of the properties, would be developed through collaborative partnerships with government agencies and public and private organizations with cultural resource management or research capabilities/expertise.

Mojave would prepare a scope of collections statement (SOCS) and a collection management plan (CMP) to address and document the management, protection, preservation and use of natural and cultural specimens, objects, documents, photographs or electronic media in accordance with the provisions of Chapter 9 of *NPS-28: Cultural Resource Management Guideline*. The scope of collections statement would address the significance of the collections and set limits on collections consistent with the mission statement, purpose and significance statement, and interpretive prospectus. It would also address collections generated by research, resource management, and compliance activities. The collection management plan would document and evaluate alternative approaches to management, preservation, and protection of collections identified in the scope of collections statement. Alternatives would include developing in-house collection management capability, including museum storage and preservation facilities, or using cooperative agreements with other park units, other federal agencies, or universities and museums.

The National Park Service would develop and implement a systematic applied cultural resource research program to ensure that (1) there would be adequate baseline information on location, condition, threats, and significance/integrity of resources; (2) interpretation and preservation treatment of resources would be accurate; and (3) appropriate means would be used to manage, protect, preserve, and interpret Native American heritage or other ethnographic resources. The research program would include the following studies:

- archeological studies, including a regionally based archeological research plan, an archeological overview and assessment, and archeological identification and evaluation studies
- ethnographic studies, including an ethnographic overview and assessment, a cultural sites inventory, and cultural affiliation studies
- historical studies, including a historic resource study, a cultural landscape inventory and cultural landscape report, a list of classified structures, historic structure reports, historic furnishings plans, an administrative history, and special history studies
- a scope of collections statement and a collection management plan as described above
- cultural landscape inventories, evaluations, and assessments with emphasis on themes of the history of western exploration and settlement, mining, ranching, and railroading

The preserve's resource management plan would address the requirements, projects, and funding to implement the cultural resource program. To support this program, the National Park Service would develop collaborative partnerships with government agencies and public and private organizations with expertise in cultural resource management or research capabilities. These entities could include federal, state, and county agencies, academic institutions, local and regional cultural and historical associations, and Native American tribes affiliated with lands in the national preserve. As requested, the National Park Service would cooperate with owners of historic properties within the national preserve boundaries to ensure the properties' preservation. To achieve cultural resource program objectives, under the authority of 36 CFR 1.5, the National Park Service might control or limit human activities in areas designated as culturally sensitive or threatened.

Nomination forms are being prepared for the Soda Springs Historical District that would evaluate eligibility of placing the properties on the National Register of Historic Places. If the facility was accepted for the register, its management could be affected. The National Park Service would produce a historic resource study/historic structures report that would specify the historic preservation treatments for the various Zzyzx historic structures associated with Doc Springer, including the pool house and the Sunset building (see affected environment for a complete description). The report may recommend the preparation of development concept plans for the coordination of new and existing facilities to better support current and proposed operations.

NATIVE AMERICAN INTERESTS

Consultation and coordination with historically associated tribes would be conducted on a regular basis to ensure effective exchange of viewpoints. A protocol for this relationship would use a framework citing existing legislative, executive, and policy directives as guidance to meet tribal community desires and interests.

The NPS liaison with the tribes would meet regularly with the tribes' representatives and discuss local issues. The liaison would also maintain records of communications, events, and issues; would inform the superintendent of concerns; and would develop cooperative, mutually beneficial undertakings with the tribes.

A review board would be formed to consider tribal resource management plans, to agree on cooperative monitoring of resource use, and to resolve local differences concerning resource use. At a minimum, the board would be composed of the preserve superintendent and the liaison, plus the chairpersons of the tribal councils and another representative.

The National Park Service would work with the Bureau of Indian Affairs to seek to provide for training internships for tribal members.

VISITOR USE, SERVICES, AND FACILITIES

INTERPRETIVE AND ORIENTATION PROGRAM

NPS staff would develop an interpretive plan that would guide the overall direction and emphasis of the interpretive and educational programs. The overall objective would be to support the vision of visitors being able to experience a land relatively free of development and improvements, with opportunities to feel a sense of exploration and discovery. The staff would constantly seek to understand and respond to visitor needs while striving to improve interpretive programs and facilities. To help accomplish this goal, visitor studies would be conducted every 5 – 10 years or as needed to gain the appropriate information (as funds are available). The National Park Service would work with California State Parks to develop a coordinated interpretive program that would offer information on Providence Mountains State Recreation Area and the Mojave National Preserve.

Existing interpretive media would be analyzed for accuracy, effectiveness, and appropriateness; some might be removed or replaced. Interpretive services would be supported by nonpersonal media such as wayside exhibits, brochures, and publications. Personal services such as ranger-led tours and nature walks would also be available.

INTERPRETATION AND ORIENTATION FACILITIES

A small information and visitor contact center would be placed at the headquarters building in Barstow to serve the public and specifically to fill the needs of local communities. Staffed information centers at Baker and Needles would continue to operate with the same focus as at present. The Hole-in-the-Wall visitor contact station would continue to provide information and serve as a base for interpretive programs such as ranger-led walks and talks (see "Administrative Operations and Facilities" for more information on Hole-in-the-Wall). Because the preserve has many highway entrances and only two staffed information centers outside its boundary, many visitors might arrive without much opportunity to receive advanced information. To remedy this problem, the staff would develop effective means of providing advanced information on the preserve and the Mojave Desert. The overall objective of this proposal would be to try to provide advance information that would improve the quality of people's visit to the preserve.

Technological media such as compact disks and audiotapes would be provided to give visitors portable information. Brochures and other printed material would support a self-guiding interpretive program. Information would be provided in several languages and for various learning styles. These items might be part of an advance information program. NPS employees also would emphasize visitor safety and resource protection.

Kelso Depot

Kelso Depot would be restored to its period of historical significance for use as a museum and interpretive facility. The restored depot would include a lobby, information space, a museum, audiovisual exhibits, presentation space, public restrooms, publication sales, and storage space. The building would also be modified to provide the following functions: (1) The Beanery Café would be restored to an operating restaurant to provide a limited amount of food service; (2) NPS administrative offices would be established in the depot; (3) Short-term lodging for employees or others may be established. (The latter would be done only if mitigation measures from the current flood study are implemented). Besides the depot restoration, the following are other key elements of the Kelso Depot restoration and interpretation strategy. Refer to appendix B for a more complete description:

- acquire the Kelso schoolhouse and general store for possible preservation and interpretation
- acquire adjacent private lands to provide adequate space for parking and exhibits and to allow the protection of the cultural landscape of the Kelso area
- take necessary steps to secure flood dike to ensure protection of the depot during flood events
- restore historic landscaping
- install water well and waste water treatment system
- evaluate possible elevated viewing platform
- evaluate possible interpretation of historic iron ore loading bin and Vulcan Mine

- evaluate possible interpretation and identify appropriate locations for the display of a caboose and develop agreement for its restoration

ROAD OR TRAILSIDE DISPLAYS

A minimal number of road or trailside interpretive wayside panels would be installed. Signs would be posted asking visitors to check for tortoises under their vehicles before leaving parking areas. Displays typically would be placed along paved or other heavily traveled roads to interpret significant and interesting resources visible from each area. Safety and orientation panels would be installed at key trailheads. A wayside exhibit plan would be prepared. Care would be taken to make and keep these displays as unobtrusive as possible and secondary to the landscape they were interpreting. The objective behind this proposal is to provide a landscape relatively free of exhibits or signs so that visitors could experience a sense of exploration and discovery.

EDUCATION AND OUTREACH

The preserve staff would continue to pursue partnerships with school teachers and university field offices at the Desert Studies Center at Soda Springs, the Granite Mountains Natural Reserve, and others to provide students and the public with current information on the cultural and natural elements of the preserve. Space inside the Kelso Depot and at Soda Springs might be considered for use by field classes. Where possible, field classes and seminars would be offered with assistance from CSU and UC systems and other education providers. Educational programs would be expanded as staffing permits. Programs and information would be developed for visitors with little previous exposure to desert areas. Programs would seek to make resources and experiences more accessible to diverse audiences while retaining primitive conditions and protecting resources. A special educational outreach effort would be made to reach students that might otherwise not have an opportunity to visit national parks.

Soda Springs

The existing self-guided interpretive program would be revamped, following the recommendations of a long-range interpretive plan and site specific studies. Ranger-led programs would be available where topics matched primary interpretive themes and visitor experience goals. Visitor use and interpretive programs in this area would be coordinated with California State University. Where possible, the procedures and results of ongoing desert research would be interpreted to the public.

DAY USE AREAS

The following areas would be designated for day use to avoid the potential conflict between recreational day visitors and overnight campers.

- All paved roads and all side roads within 0.5 mile of the pavement, unless designated as an informal camping area.
- The access road to the Kelso Dunes parking lots and the area north of the road to the crest of the dunes, or a distance of 1 mile.
- Fort Piute, including an area within 0.5 mile of the fort ruins.
- The area within 0.5 mile of the Kelso Depot.

Other areas might be designated as needed to protect the preserve's natural and cultural resources and reduce conflicts in visitor activities or other management objectives.

RECREATIONAL DAY USE ACTIVITIES

It is recognized that recreational trends continue to change and that specific, detailed directions on certain activities need to be placed under a guiding statement providing overall direction. *NPS Management Policy on Recreational Activities* (section 8), provides guidance for determining the appropriateness of recreational activities in units of the national park system.

Unless the activity is mandated by statute, the National Park Service would not allow a recreational activity within a park if it would involve any of the following results:

- inconsistency with the park's enabling legislation or proclamation or derogation of the values or purposes for which the park was established
- unacceptable impacts on visitor enjoyment due to interference or conflict with other visitor use activities
- consumptive use of park resources (does not apply to certain traditional activities specifically authorized by NPS general regulations)
- unacceptable impacts on park resources or natural processes
- unacceptable levels of danger to the welfare or safety of the public, including participants

NPS Management Policy also states that each unit of the national park system is responsible for determining which recreational activities are appropriate or inappropriate, based upon the unit's purposes and values (see the purpose and significance statements for Mojave National Preserve).

Rock-Climbing

One activity that may increase in the future is rock-climbing. To promote responsible public actions that would minimize impacts on natural and cultural resources or on other visitors, the National Park Service would adopt the following guidelines. The management goal would be to allow climbers to enjoy their experience with a sense of challenge in a manner that would leave the environment relatively unchanged or impacted, allowing future climbers an opportunity for a similar experience. Rock-climbing would also be managed with the following objectives through the management tools such as of inventory, mitigation, education, and, if necessary, closures.

- protecting cultural resources such as rock art and historic or prehistoric sites
- protecting natural resources, including threatened and endangered plants and animals
- protecting wilderness resources and values from visual and physical impacts
- protecting the outdoor recreational experiences of visitors not participating in rock-climbing
- protecting geological resources by promoting low-impact climbing methods and prohibiting drilling or other actions that would leave permanent anchors/bolts in or on rock faces
- developing an open communication line with the climbing community to promote a spirit of cooperation in achieving objectives and resolving problems
- clean climbing methods would be promoted

The National Park Service would seek ways to educate the public on proper climbing ethics and outdoor skills such as those promoted by the National Outdoor Leadership School's "Leave No Trace" program for climbing which discourages chipping or destroying rock for climbing purposes. Mojave National Preserve would monitor rock-climbing use levels and related activities in the coming years to determine the effectiveness of current management in achieving the previously mentioned goals and objectives.

Hunting, Trapping, and Fishing

Hunting would follow existing California Department of Fish and Game (CDFG) regulations except for the following: Hunting would be limited to game birds (mourning dove, quail, and chukar), deer, and bighorn sheep during their designated CDFG season, which usually is between September and the end of February. All hunting dogs must be in the owner's control and, other than for hunting upland game birds, must be on leash. Hunting is limited to daylight hours and must take place at least 500 yards away from campgrounds, buildings, Piute Creek, natural or artificial sources of water, the Desert Studies Center at Soda Spring, Granite Mountains Natural Reserve, and maintained roads or trails. Plinking (random target shooting) is not allowed.

Trapping is allowed, except within 500 yards of private property, campgrounds, Piute Creek, any natural or artificial sources of water, roads, and within 1 mile of the Desert Studies Center at Soda Springs and Granite Mountains Natural Reserve. Trapping would be permitted from September through February, with no use of leg traps be allowed, and trapping of nonpredators only. The superintendent could issue a permit for trapping in the above excluded areas and for other species if such activity was found to be administratively necessary.

Fishing would follow existing CDFG fishing regulations. The collection of nongame birds, reptiles, amphibians, and invertebrates would not be permitted under NPS regulations (CFR 36 2.2 b.4 & 2.5.a) without a valid NPS scientific collection permit.

ORGANIZED EVENTS

Organized events that involve seven or more vehicles or more than 15 people within the boundary of Mojave National Preserve would be required to obtain a special use permit from the National Park Service. The National Park Service would evaluate each event according to current and appropriate environmental regulations and guidelines to determine if the organizers of the event would have to prepare an environmental impact statement or an environmental assessment for their proposed activity.

SIGNS

The philosophy on signs would be for them to be unobtrusive, used sparingly, and that they blend with the natural environment so that the undeveloped wild character and sense of exploration remains. The National Park Service would prepare a sign plan to ensure that this vision would be carried out. The sign plan would provide for directional signs to major points of interest, which are typically located on the major roads that carry most of the traffic. Secondary or backcountry roads would remain relatively free of directional signs. The intention would be to keep new visitors from becoming lost. Efforts would be made in the sign plan to use international symbols or other appropriate methods to keep signs simple and easily understood for the broad spectrum of visitors entering the parks. Because the desert can be unforgiving in the summer, emphasis would be placed in the sign plan for signs that could help protect the health and safety of visitors unfamiliar with the desert. A variety of media would also be used to minimize the proliferation of signs.

DEVELOPED CAMPGROUNDS

Ongoing improvements to campgrounds would continue as described for the no-action alternative, with additional improvements at Mid Hills to improve accessibility visitors with disabilities. If visitation significantly increased to the point where many visitors were being turned away during most of the peak season, a campsite reservation system would be considered. Locations for new semi-developed campgrounds with fewer services and smaller numbers of campsites would be considered. Campsites and trails in the Mid Hills campground would be redesigned over the coming years to increase the level of accessibility for people with disabilities and to resolve other concerns. Campsite densities would not be increased. There would be no changes to the Hole-in-the-Wall campground.

BACKCOUNTRY AND ROADSIDE CAMPING

Roadside camping would continue to be allowed in previously used areas. There are many of these campsites along dirt roads. The creation of new campsites would not be allowed. Visitors are encouraged to bring their own firewood and are not allowed to collect firewood in the preserve. Campfires would be allowed in existing fire rings, or visitors could use a fire pan. Backcountry structures on public lands would remain available to the public on a first come basis.

Mojave would prepare a backcountry/wilderness management plan when use levels or resource impacts warranted. Until the plan is completed, the preserve would manage roadside camping with the following regulations:

- Roadside camping would be allowed 0.5 mile beyond any developed area, paved road or day use area.
- Campsites must be more than 200 yards from any natural or constructed water source.
- Overnight group size would be limited to 15 people and no more that seven vehicles. Larger groups must contact a preserve office for a special use permit.
- Vehicles must remain in previously disturbed areas. Driving off roads would not be permitted.

Camping in Areas of Desert Tortoise Critical Habitat and Other Sensitive Areas

The National Park Service would adopt guidance provided by the Bureau of Land Management's plan for the East Mojave Scenic Area, which calls for an evaluation of camping areas within or adjacent to sensitive resources to determine if there is a need to relocate camping within the same general vicinity to protect resources. This might require the closure of some campsites. Further studies would be conducted to determine the limits of acceptable change that these areas could withstand while maintaining the desired cultural or natural resource conditions and a quality visitor experience. Campsites could be considered open unless designated as closed.

Camping at High Use Areas

The BLM management plan for the East Mojave Scenic Area called for the designation and marking of specific campsites in locations that are consistently heavily used by individuals or groups. It is proposed that this recommendation be adopted by limiting camping to designated campsites in high use areas. Resource conditions and visitor use would be monitored to determine the need for designating sites such as Caruthers Canyon, Cima Dome, Cinder Cones, Clark Mountain, Granite Pass (Kelbaker Road), and Grotto Hills. Other locations could be identified as information on visitor use was gathered. Campsites would be marked for easy identification by some means, but other improvements would be avoided unless proposed improvements would help protect resources.

VISITOR USE FEES

Fees and their use are determined in accordance with the criteria and procedures of the Land and Water Conservation Fund Act of 1965 (sec. 4, 16 U.S.C.A. 4601-6a (Supp., 1974) and section 3, Act of July 11, 1972, 86 Stat. 461), the Recreational Fee Demonstration Program

(P.L. 104-134), and regulations in 36 CFR 71. The preserve would continue to explore options for fee collection revenues consistent with congressional direction.

The only visitor use fees collected in Mojave National Preserve, are camping fees for the Mid Hills and the Hole-in-the-Wall campgrounds and the group area at Hole-in-the-Wall. Fees are also collected for special use permits (such as filming, organized group outings, etc.). An entrance fee study would be prepared in the future.

COMMERCIAL SERVICES

No commercial services are proposed. A concession contract to operate a food service facility in the Kelso Depot (see appendix B) is being considered.

ROADS AND CIRCULATION

No changes would be made to the existing roads. Some limited improvement of heavily used roads might be undertaken when funds permitted, such as the recent addition of crushed rock to the Kelso Dunes access road. The county would continue to maintain the paved roads throughout the preserve, as well as the graded dirt Cedar Canyon, Black Canyon, and Lanfair Valley roads. An agreement is currently being drafted that would allow the county to utilize borrow sources in the preserve for road maintenance. The National Park Service maintains graded dirt access roads to the Soda Springs facilities, Kelso Dunes and Wild Horse Canyon road. High-clearance and four-wheel-drive (4WD) roads would not be maintained; however, emergency repairs might be undertaken following flash floods. Vehicle use in the preserve would be limited to street legal vehicles. No off-road driving would be permitted.

To provide detailed guidance for managing the preserve's road system, a road management plan may be prepared to evaluate the status of duplicate road sections, road surface conditions, and the level of maintenance. The management philosophy would be to enhance the visitor experience while providing for safe and efficient accommodation of park visitors and also protecting the natural and cultural environment. It also would include the need to provide a road system that would allow for a variety of driving experiences consistent with the purpose and significance statements of this unit of the national park system unit.

MOJAVE ROAD

The National Park Service would strive to maintain the experience of solitude, adventure, and a sense of exploration for visitors traveling the Mojave Road. NPS rangers would patrol the road to offer emergency assistance and protect cultural and natural resources. The National Park Service would work to educate unprepared visitors about the rough character of the road. The primary guides for route finding would be the traditional rock cairns, along with maps, guidebooks, or other media.

The road would remain open for street legal vehicles, mountain bikes, equestrians, and hikers. Interpretive information would be available at visitor and information centers to enhance the public's understanding of features along the road. Information would stress proper low impact camping and travel techniques. The National Park Service would not grant business permits for commercial guided tours of the road to keep use levels down and avoid commercialization of the road.

Maintenance of the Mojave Road would be considered in a road management plan for the preserve. Under that plan, general guidance would be given to allow the Mojave Road to develop its own character with minor maintenance action until the plan was completed. Maintenance generally would be limited to repairs needed to allow continued passage by vehicles currently using the road. Opportunities to interpret significant features along the road would be considered. The National Park Service would seek partnerships with volunteer groups to help with maintenance of the road and other features in the road corridor.

Large groups with seven or more vehicles or more than 15 people would be required to camp at designated areas and obtain a special use permit. Areas that would be considered for large group use would be Grotto Hills, Willow Wash, Seventeen Mile Point, the southeastern edge of Soda Lake in the Cow Hole Mountains, and the area know as the Granites, which are southwest of Soda Lake. Other areas might also be considered. The number of large groups using the road would be managed through the special use permit system. The intent of this action would be to keep adverse impacts low and avoid conflicting demands for camping space. This proposal would be further addressed under a future backcountry or visitor use management plan.

Camping along the Mojave Road would be subject to management decisions made for roadside camping. Baseline information would be collected to determine use trends, the physical condition of the road, and conditions of natural and cultural resources adjacent to the road and at associated camping areas. When high use levels or inappropriate visitor behavior caused unacceptable impacts on the road or resources or negatively affected the quality of the visitor's experience, management actions would be taken to correct these problems. Standards for visitor use and resource conditions would be established after baseline information was gathered and evaluated in the backcountry or visitor use management plan.

TRAILS

The backcountry/wilderness management plan would address trail use by hikers, equestrians, bicycles, and visitors with disabilities. The plan would identify the type and intensity of trail development, including the number of signs, trails, and trailheads, long distance trails extending into Bureau of Land Management or California State Parks and other jurisdictions, and anticipated maintenance levels for developed trails. Wilderness areas are closed to use by mechanized vehicles but open for other uses, including use by wheelchairs in accordance with NPS policy. The backcountry wilderness management plan would consider the feasibility of designating dirt roads as bicycle routes. Roads closed to mechanized use by wilderness designation may be considered for use as hiking and equestrian trails. The plan would be guided by the goal of increasing the diversity of recreational opportunities for the above activities in appropriate locations. Until completion of the plan, all trails would be open for use by hikers and equestrians, except where management problems were identified and restrictions needed to be established. Bicycles would be allowed on all open roads, but not on single-track trails, in wilderness, or off-roads.

TRAINS

If passenger train service resumes, the National Park Service would coordinate with Amtrak on the feasibility of placing NPS information and interpreters on trains and allowing passengers to stop at Kelso Depot. The National Park Service would support the communities of Barstow, Nipton, and Primm in the establishing passenger train stops at these locations, with the anticipation of also establishing a stop at the Kelso Depot. Where feasible and appropriate, the National Park Service would also support the concept of using rail as an alternative form of transportation for visitors entering the preserve.

ADMINISTRATIVE OPERATIONS AND FACILITIES

ADMINISTRATION

Headquarters for Mojave National Preserve would continue to be located at Barstow. Space would be available for the superintendent's office, administration, planning, visitor services, resource management, special uses, and other central administrative offices. The preserve would continue to evaluate building or leasing a new headquarters office in Barstow. Office space would be provided for staff in Baker, Needles, Hole-in-the-Wall, and Kelso.

The maintenance management plan would determine the level of and location of maintenance support operations for NPS facilities. The plan would be guided by the objective of keeping most support facilities outside the boundary. Locations for a central maintenance facility, possibly at Essex, Needles, or Baker, would be evaluated. In addition to an information center, Baker would become the interim central maintenance operation, taking care of most short-term maintenance needs. New facilities such as shops, enclosed storage, and offices might be constructed at the existing yard. A mobile maintenance operation would also be established to support maintenance throughout the preserve. The National Park Service would consider the option of contracting for some maintenance services if it would make economic and practical sense.

Fire protection services would continue to be managed in cooperation with the Bureau of Land Management and located at Hole-in-the-Wall. Because of the poor condition of facilities at Hole-in-the-Wall, some improvements may be made after the development concept plan is completed.

The existing location of the visitor contact station would be evaluated in a development concept plan for Hole-in-the-Wall and could be would be relocated or demolished if the appropriate.

One objective of this concept plan would be to call for the design of facilities so that would be operationally efficient in their purpose, but visually secondary and complementary to the beauty of the natural resources. Alternative energy sources such as solar electricity would be considered for facilities at Hole-in-the-Wall and other remote NPS locations of housing or operations.

Buildings may be acquired through donation or acquisition. An assessment would be made for possible future uses such as visitor contact stations, administrative facilities, employee housing or restoration as historical interpretive properties.

The preserve would explore the possibilities of sharing a highway equipment and materials staging yard at Kelso or Essex. Potential partners at the yard might be San Bernardino County Department of Transportation and Flood Control, and Union Pacific Railroad. The preserve would also explore the possibilities of a joint operation with California State Parks to share maintenance and other services.

EMPLOYEE HOUSING

The prime management direction for employee housing would be to rely on housing outside the preserve, whenever possible, and to take advantage of existing housing within the preserve. If existing homes in the preserve were acquired by government purchase or donation, the National Park Service would evaluate the historical value, management, and aesthetic needs, and the cost effectiveness of bringing these homes up to current standards. Standards and guidelines would include: current NPS housing guidelines, building codes, historic preservation guidelines and standards, accessibility and energy conservation. Housing might be renovated, replaced, or removed as appropriate. Before upgrading existing acquired homes or constructing new housing for employees, the National Park Service would evaluate the location of the housing and make a determination about whether private housing elsewhere within a one hour drive could serve the same need, and whether the total housing units are the minimum necessary to meet the mission of the preserve. New housing construction would be considered when the evaluation step determined that renovation was not practical from an economical or operational standpoint and that the home had no historic significance. The National Park Service would evaluate the feasibility of upgrading existing housing structures in the preserve to make them as energy-efficient as possible while upgrading the living conditions to meet current NPS housing guidelines. NPS employee housing would not be provided in Needles or Barstow; rather, employees would find housing on the open market.

When staffing levels exceed available NPS and private housing in Baker, new housing would be constructed to replace the existing double-wide trailers. Construction of new housing in Baker outside the existing yard would require appropriate approval and would depend on the availability of funding to buy private land to construct housing. Until then, the National Park Service would continue to upgrade the existing double-wide trailers where possible.

As space permitted, some of the upper rooms in the Kelso Depot might be used for employee housing and temporary quarters for staff conducting fieldwork. Additional housing for employees in the Kelso area would also be considered if proposed housing in the depot is found to be inadequate to support programs. Housing may also be provided at the Hole-in-the-Wall area as positions are filled and adequate housing within a one-hour drive is unavailable outside the preserve.

SOLID WASTE DISPOSAL

Solid waste would continue to be hauled to an approved site. The Baker landfill was closed by state law in 1997 and is undergoing closure. Federal law prohibits new landfills in all units of the national park system.

EDUCATION AND RESEARCH CENTERS

Cooperative management agreements would be developed between the National Park Service and the California State University Consortium through the Trustees of the California State University (CSU) and the University of California (UC).

The following points would be proposed for the cooperative management agreements:

The National Park Service would enter into a cooperative management agreement with California State University to (a) lease the facilities at the Soda Springs Desert Research Center and (b) to provide for continuing California State University's research and educational activities in the Mojave Desert. The agreement would define each party's roles and responsibilities. The National Park Service would also enter into a Cooperative Agreement with the Regents of the University of California through the director of the University of California's Natural Reserve System to provide for continuing research and educational activities in the Mojave Desert at the Granite Mountains Natural Reserve. The National Park Service would seek a partnership with University of California to collaborate on research, interpretation and public education. The intent would be to increase public awareness and understanding of natural and cultural resources and ongoing research in the preserve. Research and educational activities of the University of California consistent with the provisions of this title and the laws generally applicable to units of the National Park Service would continue.

The National Park Service would be responsible for law enforcement, interpretation, visitor access, and the natural and cultural resource management program, including the area encompassed in the Soda Springs Desert Research Center and the Granite Mountains Natural Reserve once appropriate agreements are in place. In developing its resource management program, the National Park Service would work with the university and college to address issues and concerns associated with their research and educational activities in the preserve, the natural reserve, and with facilities management at Soda Springs Desert Research Center. The designated wilderness within the natural reserve would be managed for wilderness values.

The National Park Service would be responsible for the review and approval of all proposals for research on preserve lands to ensure that they conform to the requirements of its guideline *NPS-77*

Natural Resource Management, chapter 5, and the provisions of 36 CFR 2.5. The superintendent would issue research permits. Research that conflicts with current approved research, including long-term study plots that failed to meet NPS standards, would not be approved.

Signs would be posted at highly accessible points of entry, including Zzyzx Road. The purpose of signing would be to define public access requirements and current interpretive programs or facilities. The National Park Service would manage and maintain the NPS visitor contact facility, its parking area, and the visitor picnic area. California State University would continue to maintain all facilities at the Desert Studies Center at Soda Springs except for the main entrance road from Interstate 15 to the facility gate, the interpretive shelter and associated parking lot, restrooms and path. Ranger-led tours of Soda Springs and some of the Zzyzx structures would be coordinated with California State University to minimize impacts on California State University operations. These tours might be provided times of the year when tour group size and frequency justified the use of NPS staff.

The NPS would work with the universities to ensure protection of research plots. The discharge of weapons in the natural reserve would continue to be prohibited by San Bernardino County ordinance and the National Park Service.

LAND OWNERSHIP AND USE

PRESERVE BOUNDARY AND AUTHORIZED ACREAGE

No changes in the boundary of the preserve are proposed. During the prolonged debate over the creation of the Mojave National Preserve the boundaries were subjected to considerable scrutiny and public debate. The National Park Service believes a comprehensive examination of potential boundary modifications at this time is unwarranted and should be delayed until the preserve has been able to manage the area with the existing boundaries for a time to determine if there are areas where adjustments are justified. The boundary map submitted to Congress reflects a more accurate total acreage of 1,589,165 acres included with the external boundary of Mojave.

The National Park Service intends to locate some facilities outside the preserve, consistent with the existing management direction and proposed actions identified in this plan. This would include, but is not limited to, the headquarters site in Barstow, visitor facilities in Baker and Needles and employee housing in Baker.

WILDERNESS

In 1964 Congress enacted the Wilderness Act, which [sec.2.(c)] defined wilderness as:

> A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An

> area of wilderness is further defined to mean in Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value (16 USC 1131).

In 1994, Congress enacted the California Desert Protection Act (CDPA), which designated 695,200 acres within the Mojave National Preserve as wilderness. The CDPA also modifies some provisions of the Wilderness Act. The following are the key provisions of the act related to wilderness:

- Native Americans may gain access to sacred sites in NPS or BLM wilderness, but such access must be consistent with the Wilderness Act [sec. 705.(a)].
- Federal reserved water rights are explicitly reserved for BLM and NPS wilderness [sec. 706(a)].
- Inholders have rights of adequate access for reasonable use and enjoyment in units of the national park system, including NPS wilderness and BLM wilderness [sec 708].

The process of "interpreting" the congressional wilderness boundaries and preparing the official maps and legal descriptions prescribed in sec. 602 of the CDPA would continue. The wilderness boundaries in Figure 2 reflect the preliminary final interpretation. Once completed, final wilderness boundary maps would be submitted to Congress. It is assumed that the actual wilderness acreage may deviate from the approximate acreage of 695,200 acres estimated in section 601 of the act.

The National Park Service would manage wilderness areas for the use and enjoyment of the American people in a way that would leave them unimpaired for future use and enjoyment as wilderness. Management would include the maximum statutory protection allowed for these areas, the preservation of their wilderness character, and the gathering and dissemination of information regarding their use and enjoyment as wilderness. Public use of wilderness may include recreation, scenic preservation, scientific study, education, conservation, historical use, and solitude. A separate backcountry/wilderness management plan would be prepared.

The Wilderness Act generally prohibits motorized equipment or mechanized transport in designated wilderness areas; however, it allows them "as necessary to meet minimum requirements for the administration of the area for the purpose of this Act." The superintendent would administer wilderness lands in the preserve with the minimum disturbance to the area or its resources. This method of managing the wilderness area is often referred to as the "minimum tool concept." All decisions pertaining to administrative practices and use of equipment in wilderness would be based on this concept. Potential disruption of wilderness character and resources and applicable safety concerns would be considered before, and given significantly more weight than, economic efficiency. If some compromise of wilderness resources or character was unavoidable, only those actions that would have localized, short-term adverse impacts would be acceptable.

In 1995 the federal managers of the Mojave Desert adopted "Principles for Wilderness Management in the California Desert" as guidance for themselves and their staffs in the implementation of the Wilderness Act and the pertinent sections of the California Desert Protection Act. The managers represented the Bureau of Land Management (California Desert and Yuma Districts), the National Park Service (Death Valley and Joshua Tree National Parks and Mojave National Preserve) and the U.S. Fish and Wildlife Service (California State Supervisor). This interagency effort also provides some consistency in desert wilderness management.

LAND ACQUISITIONS

Department of the Interior policy requires that the National Park Service prepare a land protection plan for every unit of the National Park Service that has nonfederal lands or interests within its authorized boundary. A land protection plan for Mojave National Preserve is included in this document as appendix C. Detailed descriptions of the nonfederal lands and interests are also included there.

The National Park Service would seek funds to acquire private lands and interests in the preserve on the basis of priorities presented in the land protection plan (see appendix C). Private land in Lanfair Valley that contains single family homes would not be considered for acquisition unless offered by the owners. Private land in wilderness, habitat for threatened or endangered species, and riparian habitat would be considered high priority for purchase.

Whenever acquisitions of private land occurs, the parcel would automatically become part of the preserve and no boundary adjustment would be needed. Donations and exchanges of real property from willing sellers would be a priority, and third-party acquisitions from willing sellers would be encouraged. State school sections in the new lands are actively being exchanged by the Bureau of Land Management pursuant to the direction of the California Desert Protection Act.

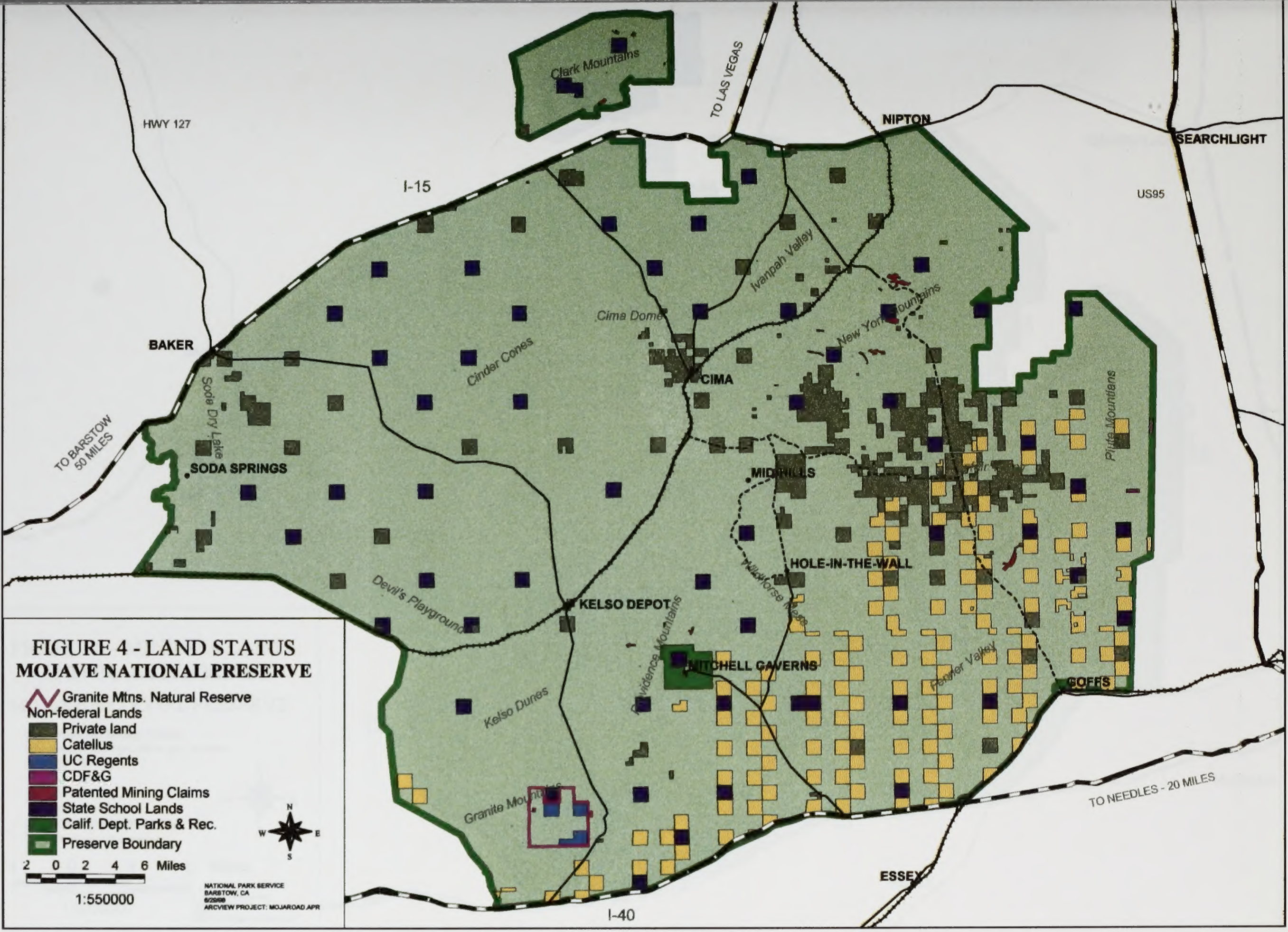


FIGURE 4 - LAND STATUS
MOJAVE NATIONAL PRESERVE

NATIONAL PARK SERVICE
BARSTOW, CA
6/29/98
ARCVIEW PROJECT: MOJAROAD.APR

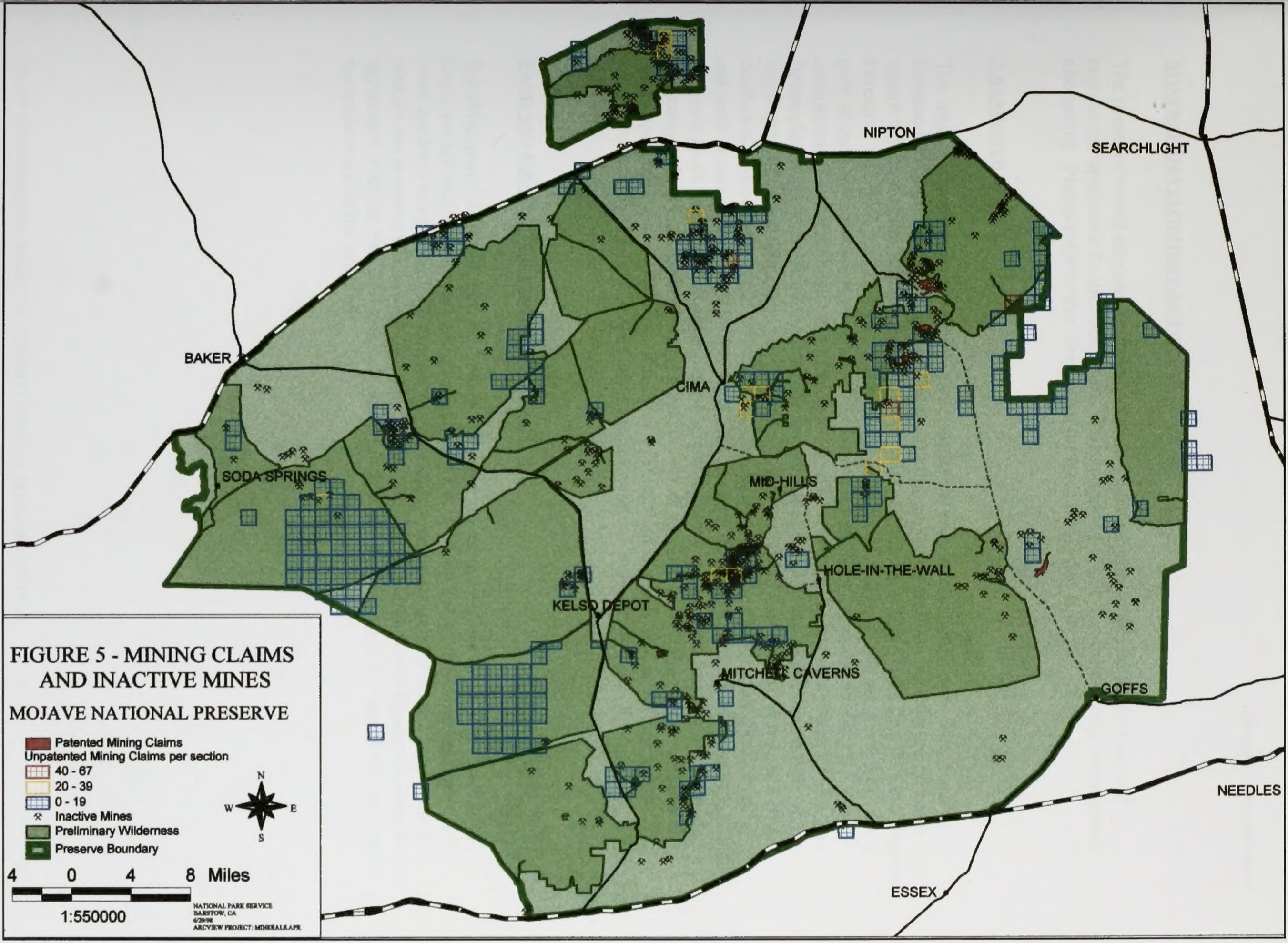


FIGURE 5 - MINING CLAIMS AND INACTIVE MINES

MOJAVE NATIONAL PRESERVE

MINERAL DEVELOPMENT ACTIVITIES

The preserve would administer mineral development activities under existing laws and regulations applicable to such activities. This action is the same as the existing management alternative. Please refer to that alternative for a complete description.

ABANDONED MINES

The legacy of past mining in the preserve has left 419 abandoned mine sites with possibly thousands of mine openings and workings. Preliminary observations indicate the problem is a significant land management issue that may deserve program status. The 1992 Western Region Directive WR-085, Management of Abandoned Mineral Lands outlines the framework for a park abandoned mine lands program. The National Park Service would conduct a comprehensive inventory of all Abandoned Mine Lands (AML) sites to serve as a basis for future planning and reclamation program implementation. The inventory would build upon existing information from the U.S. Geological Survey (USGS), Bureau of Mines, and BLM databases. Mines would not be reclaimed until evaluated for historical significance and integrity in compliance with the National Historic Preservation Act of 1980, as amended. The program goals would include eliminating physical safety hazards and hazardous materials; mitigation of adverse environmental impacts to park resources, including the restoration of landscapes, soils and vegetation; protection of important wildlife habitat such as bat habitat; and preservation of historic and cultural resources which may include stabilization of structures.

SAND AND GRAVEL FOR ROAD MAINTENANCE

Building materials (sand, gravel, cinders), geothermal resources, and oil and gas on federal lands are not available for extraction or sale. Use of borrow materials for road maintenance must conform to existing NPS policy, which requires materials to be obtained from sources outside the preserve unless economically infeasible. The preserve would finalize a cooperative agreement with the San Bernardino County for road maintenance and the use of borrow sites to maintain roads in the preserve.

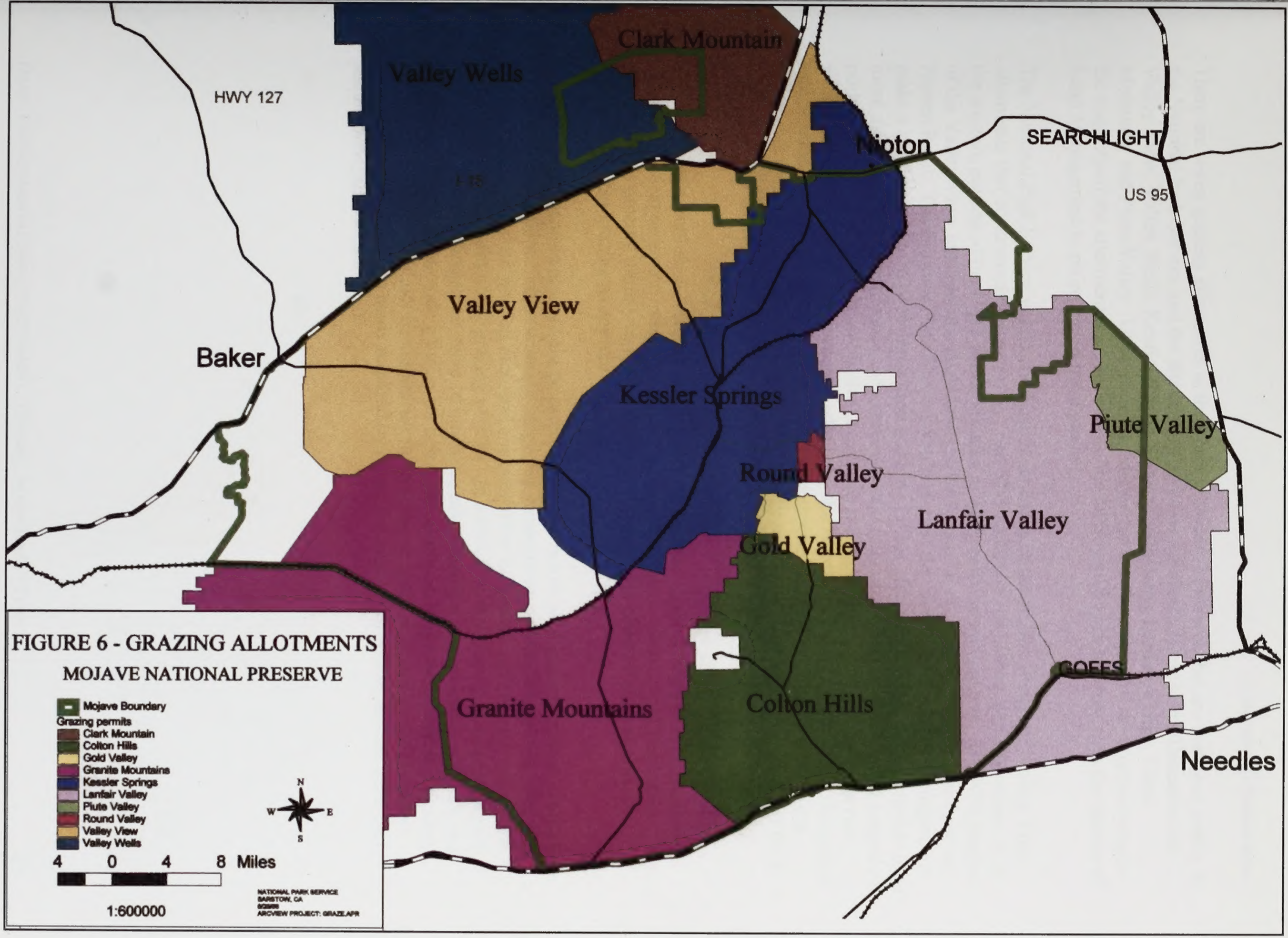


FIGURE 6 - GRAZING ALLOTMENTS

MOJAVE NATIONAL PRESERVE

There are seven grazing allotments in the Mojave National Preserve that are managed jointly by the National Park Service and the Bureau of Land Management. These joint allotments are Valley View, Valley Wells, Kessler Spring, Granite Mountains, Lanfair Valley, Clark Mountain, and Piute Valley. Upon securing a buyer for a willing seller of an allotment where the majority of the allotment is on NPS lands, the NPS would work together with the Bureau of Land Management to retire the entire allotment.

The National Park Service would combine the portions of the Valley Wells and Valley View allotments that occur inside the preserve. The NPS portion of the Valley Wells allotment is in the western portion of the Clark Mountain area of Mojave National Preserve. The NPS portion of the Valley View excludes the BLM lands in the Mescal Range and those lands northeast of Nipton Road. The National Park Service would request that the Bureau of Land Management make a similar change in combining their portion of these allotments. This would provide for a more manageable allotment since each bureau would fully manage a single allotment instead of portion of two. Valley View would then be wholly managed by the National Park Service, while Valley Wells would be managed wholly by the Bureau of Land Management. The animal unit months (AUMs) for the NPS portion of the combined Valley View and Valley Wells allotments would be the Valley View AUMs (8,069) plus the Valley Wells AUMs (853) for a total of 8,922 AUMs. The lessee is the same for both Valley View and the Valley Wells allotments.

Where credible, published research studies demonstrate that grazing negatively impacts the desert tortoise, appropriate mitigating measures would be taken. There would be active monitoring of grazing during desert tortoise activity periods to observe impacts and if necessary, adjust grazing as appropriate.

A grazing management plan would be prepared for any active NPS grazing permit. This plan would contain guidance for monitoring range use, establishing appropriate grazing use, determining appropriate grazing fees, and covering other rangeland and resource protection and enhancement issues on all grazing permits. In addition to the grazing management plan, a community-based management team of ranchers, environmental organizations and park staff may be established to provide a forum for communications on range management practices. Additional AUMs would not be authorized for grazing on lands acquired by the preserve. These lands might include lands acquired by direct purchase from willing sellers, third-party acquisitions, and donations.

PLAN IMPLEMENTATION

OPERATIONAL COSTS

The existing operating base in FY98 is $2.5 million and the existing staffing is 36. To fully implement the proposed action over the 10-15 year life of the plan, and assuming that the above itemized activities would be undertaken and visitor use increases, an additional 56 staff would be needed. This would require the addition of approximately $2.6 million per year for salaries, benefits, and administrative expenses (space, utilities, vehicles, etc.).

The estimated costs of acquiring private lands and mining claims under this alternative are not yet available. No comprehensive evaluation of land acquisition costs has been undertaken in accordance with NPS policy and therefore cannot be estimated at this time. The cost of acquiring property involves title searches, appraisals, relocation costs, and fair market value of the property. These specific costs would be available only on a property by property basis and would need to be determined based on current market values. An approved cost estimate for the land protection alternative selected would be prepared at a later date by the Washington office.

TABLE 3: PROPOSED ACTION ALTERNATIVE COST SUMMARY

Activity	Gross Const. Costs	Const. Planning Costs	Total Project Costs	Phase
• Construct tortoise fencing (est. 100 miles) @ $21,000/mile	$2,100,000	$525,000	$2,625,000	I
• Removal of feral burros (1,800 animals @ $1,200/burro)	N/A	N/A	$2,160,000	I
• Renovate and upgrade acquired housing in preserve for employee use (per NPS housing standards - 5 units)	$363,000	$70,000	$433,000	I
• Completely restore Kelso Depot, including utilities and historic landscaping	$5,475,000	$1,045,000	$6,520,000	I
• Plan, produce and install museum exhibits at Kelso Depot	$525,000	$10,000	$625,000	I
• Roadside displays/interpretive exhibits, including parking lot (five locations)	$52,500	$10,000	$62,500	I
• Increase accessibility to campsites at Mid Hills campground (10 sites)	$38,000	$7,000	$45,000	I
• Replace Soda Springs comfort station, shade structure, information display, and interpretive exhibits	$193,000	$37,000	$230,000	II
• Develop one new 15-site semi-primitive campground with fire rings, picnic tables, and composting toilet	$61,000	$12,000	$73,000	II

Activity	Gross Const. Costs	Const. Planning Costs	Total Project Costs	Phase
• Construct central maintenance facility (1,400 sq. ft. work bldg. with office, restrooms, vehicle yard)	$285,090	$54,000	$346,000	II
• Replace or relocate HIW info center; enlarge fire dormitory and garage	$1,516,000	$290,000	$1,806,000	II
• Construct new housing in Baker to replace existing mobile homes (3 units)	$363,000	$70,000	$433,000	II
• Restore abandoned mine sites	$5,240,000	$1,000,000	$6,240,000	III
TOTALS	$16,211,590	$3,148,000	$21,739,000	

PHASES

I 1-5 years
II 6-10 years
III Spread evenly over 15 years

Construction and planning cost estimates, provided in table 3, are conceptual estimates only. These are costs of similar types of facilities and past NPS experience derived from contract data. The estimates include indirect costs added to cover such things as design services, contract supervision, and contingencies. They also take into account the cost of contracting for such services in a remote setting, seasonal constraints, labor availability, and wage rates. The planning costs are calculated at 25 percent of gross construction costs and cover site-specific project planning and compliance. The costs are based on 1998 values.

ALTERNATIVE 2: EXISTING MANAGEMENT (NO-ACTION)

GENERAL DESCRIPTION

This alternative describes the existing management approach that the National Park Service has been following since passage of the CDPA in October 1994. These actions are typically referred to as the status quo or the no-action alternative, since this is what would occur if the agency took no further action. Since Mojave is a relatively new unit of the national park system, no general management plan is in place. Most of the actions are interim policies that are being followed until a management plan is approved.

NATURAL RESOURCES

AIR QUALITY/VISIBILITY/NIGHT SKY/NOISE/WATER RESOURCES

The preserve reviews and comments on adjacent project proposals as they became aware of them. No systematic monitoring of air, water, night sky, or noise is currently underway, and none is planned at this time.

WATER RESOURCES

Same as proposed action except for the following:

Water Developments

Maintenance of existing guzzlers, livestock tanks, and troughs in Mojave National Preserve is provided for with the superintendent's approval. Motorized access to guzzlers in wilderness for the purpose of maintenance or replenishment of water is reviewed individually.

Water Rights

State records in Sacramento have been searched to identify outstanding water rights (see appendix C: "Land Protection Plan" for a list). Mojave has enlisted the assistance of water resource specialists to take necessary steps to convert water rights held in the name of the BLM to NPS records.

SENSITIVE SPECIES

A preliminary list of species of special concern in the preserve is included in appendix C. The NPS would continue to gather information on the distribution, abundance, and threats related to these species through cooperative efforts with universities. These species would be considered in all compliance action, and steps taken to protect habitat to ensure their preservation.

The desert tortoise and its critical habitat are managed indirectly through other activities and resources such as hunting, grazing, burros, and other land uses. Special use permits and environmental compliance activities typically include stipulations for the protection of the tortoise. Mojave has developed a programmatic agreement with FWS for the desert tortoise for routine activities in the preserve. This agreement allows certain specified activities and a minimal amount of disturbance to occur without the need to formally consult with FWS on each action. Consultation with the FWS on other listed species occurs for each activity.

No changes in the management of the Mohave tui chub are proposed. The artificial pond population at Soda Springs would be maintained in cooperation with U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the Desert Studies Center consortium as one of a few artificial populations of the species.

INTRODUCED SPECIES

The preserve is actively pursuing the removal of nonnative tamarisk and burros. Burros are being managed at pre-CDPA BLM prescribed levels (130 burros) under an existing agreement with the Bureau of Land Management. The burro census in 1996 indicated that an estimated 1,400 burros were present in Mojave National Preserve. The FY97 capture and adoption effort was successful with the removal and placement of 600 burros for adoption. This removal program would continue, provided adequate funding could be obtained.

Tamarisk eradication efforts would continue to identify areas where individuals of *T. ramossisima* are gaining a foothold. Planted tamarisk *(T. aphylla)* along the railroad corridor through the preserve are not believed to pose a threat. No other introduced species are being removed. However, as resource monitoring efforts highlighted other problems or research provided solutions to known problems, funding would be sought for eradication programs.

DISTURBED LAND RESTORATION

The National Park Service would continue to work to remove hazardous materials from several sites in the preserve. In addition, restoration of the AT&T cable route is planned to begin after removal of the cable in late 1998. No other restoration efforts are underway. Any new development proposal that would involve disturbance such as mining or pipeline construction would be required to restore the land.

NATIVE SPECIES RESTORATION

No ongoing efforts are being made to reintroduce extirpated native species.

FIRE MANAGEMENT

The fire policy would continue to be to suppress all fires in the preserve until fire history and effects studies were completed. These studies would provide data for determining whether to provide for natural and prescribed fires to burn in the preserve.

PALEONTOLOGICAL RESOURCES

There is no active program in effect to gather data or interpret resources, and none would be instituted under the no-action alternative. Scientific research would continue to be conducted by entities other than the National Park Service, and no comprehensive report or database would be prepared. Resource protection would continue to consist of random patrols of the backcountry.

CAVE RESOURCES

No management action is currently being taken on cave resources.

INVENTORYING AND MONITORING

Management of the preserve's resources is currently guided by direction provided in the enabling legislation and NPS regulations and policies. Development of a natural and cultural resource management plan is underway that would provide further guidance for this program. The staffing and funding for this program would remain at the current level, with modest increases possible through special initiatives. Project priorities would be determined on the basis of existing staff availability and funding. A strategic plan would be prepared annually that provides goals, objectives, and annual work plans. The strategic plan would also establish five-year goals that would allow some limited view of resource issues and allocation of staffing and funding.

CULTURAL RESOURCES

Cultural resource management would continue to be focused on NPS compliance efforts to meet the requirements of the National Historic Preservation Act and the National Park Service's *Cultural Resource Management Guideline*, release no. 4, September 23, 1994.

Cultural resource management programs would continue to be: (1) collecting data and inventorying of archeological sites, ethnographic resources, and historic properties; (2) preparing and updating the list of classified structures; and (3) preparing cultural resource studies.

Limited NPS protection of some archeological sites and ruins would continue. Limited monitoring of resources by ranger patrols would continue, with remedial actions focused primarily on sites in high use areas.

Cultural resources, including archeological sites, ethnohistoric resources, and historic properties, would continue to be evaluated under criteria for listing on the national register on a project-specific basis. Historic properties listed on, or determined eligible for listing on, the National Register of Historic Places would continue to be afforded stabilization/preservation treatment as funding allowed, with preservation efforts focused primarily on key resources in high-use areas.

NATIVE AMERICAN INTERESTS

Consultation and coordination with historically associated tribes would be conducted on specific projects as the need arises, in adherence to departmental directives and NPS policies. Relationships with some tribes in the area have begun and would continue. There is no consultation plan to provide guidance on when and what issues to consult on, for pursuing research, and on documentation of ethnographic resources and traditional use areas and sites.

VISITOR USE, SERVICES, AND FACILITIES

Staffing and funding for visitor services and maintenance of facilities would to remain at approximately constant levels. Some special initiative projects, repair and replacement funds, and routine cyclic maintenance funding would be anticipated.

INTERPRETIVE AND ORIENTATION PROGRAM

There is no overall interpretive plan in place. Interpretation programs operated in and out of information centers in Baker, Needles and Hole-in-the-Wall would continue. Ranger-led walks and talks would continue at various locations in the preserve.

INTERPRETATION AND ORIENTATION FACILITIES

The existing NPS visitor contact centers at Baker and Needles would continue to serve as the initial visitor contact points, providing the public with information on desert travel and recreation opportunities. The Hole-in-the-Wall visitor contact center would continue to be the only NPS facility in the preserve with a staffed ranger presence. Staffing at the ranger station would continue on a seasonal basis and as NPS staff or volunteers were available.

Kelso Depot

Funding is being sought to stabilize Kelso Depot to protect it from further deterioration and to provide fire and security protection. However, the interior of the depot would not be opened for public use. Interpretation of the depot would be by exterior exhibits and interpretive panels. Historic landscaping would be restored; parking lots and a comfort station would be built (see appendix B: Kelso Depot Development Concept Plan).

ROAD AND TRAILSIDE DISPLAYS

Planning would continue for roadside pullouts and entrance signs to be located along major highway entrances to the preserve. These pullouts, which would have information displays to orient visitors and provide an overview of major features, would include notes on travel safety. NPS staff would continue to work with community groups and schoolteachers in Baker, Needles, and elsewhere to provide these groups with information on the preserve.

No major new facilities would be added, although minor upgrades, relocations and redesign might be undertaken through site-specific planning efforts.

EDUCATION AND OUTREACH

NPS staff would continue to work with local schools to provide information and assistance with education programs. University of California and California State University would continue to develop and sponsor separate classes in the preserve. The preserve's staff would continue working with university research centers to offer current information on the natural and cultural resources.

DAY USE AREAS

There are no areas currently designated for day use only.

RECREATIONAL DAY USE ACTIVITIES

Rock-Climbing

Climbing activities would continue to be managed under NPS policy and regulations.

Hunting, Trapping, and Fishing

Hunting, trapping, and fishing would continue under CDF&G hunting regulations. The collection of non-game birds, reptiles, amphibians, and invertebrates would not be permitted under NPS regulations (CFR 36 2.2 b.4 & 2.5.a) without a valid NPS scientific collection permit. Plinking (random target shooting) is not permitted.

SIGNS

Existing signs would be evaluated for retention, modification or removal. Few new signs would be added. Entrance signs are being constructed at all the major entrance points to the preserve.

DEVELOPED CAMPGROUNDS

Mid Hills and Hole-in-the-Wall campgrounds would continue to provide a total of 61 campsites for a variety of recreational vehicle (RV) and tent camping opportunities. The group area at Hole-in-the-Wall would continue to offer facilities for equestrian use. Efforts to improve restrooms, campsites, and the water system at Mid Hills would continue. Both campgrounds would continue to be open year round and no reservations would be required. Hole-in-the-Wall campground has a significant level of accessibility for visitors with disabilities. No expansion of developed campgrounds or creation of new ones is planned.

BACKCOUNTRY AND ROADSIDE CAMPING

Roadside camping continues to be allowed only in previously used areas. Many such sites exist along dirt roads. The creation of new campsites is prohibited. Collecting firewood is not allowed in the preserve. Campfires are allowed in existing fire rings or in portable fire pans. Most backcountry structures on public land are available for public use with no restrictions.

VISITOR USE FEES

The collection of camping fees at Hole-in-the-Wall and Mid Hills campgrounds would continue. No entrance fees would be collected.

COMMERCIAL SERVICES

No commercial services or concessions contracts exist and none are anticipated. Special use permits would continue to be granted individually for commercial services such as guided tours and hunting guide services.

ROADS AND CIRCULATION

No changes would be made in existing roads. Some limited upgrading of heavily used roads may be undertaken as funds permitted. For example, crushed rock might be added to roads, as was done recently on the Kelso Dunes access road. The County would continue to maintain the paved roads throughout the preserve, as well as the graded dirt Cedar Canyon, Black Canyon, and Lanfair Valley roads. The National Park Service would continue to maintain graded dirt access roads to the Soda Springs facilities, Kelso Dunes, and Wild Horse Canyon road. High clearance and four wheel drive backcountry roads still would not be maintained; however, emergency repairs might be undertaken following flash floods. Vehicle use in the preserve is limited to street legal vehicles and no off-road driving is permitted.

MOJAVE ROAD

The Mojave Road would continue to be open for use, with limited restrictions on the type of use it receives. Motorcycles would continue to be allowed on the road. Vehicles must be street legal. Camping along the Mojave Road would continue to be managed under the restrictions of the preserve's interim management policies, which cover roadside camping, campfires, and other related activities. Business permits would continue to be granted for appropriate commercial tours on the Mojave Road. Special use permits would continue to be required for large groups and organized events anywhere in the preserve. The National Park Service would not maintain Mojave Road, but would seek agreements with private groups for volunteer maintenance. No directional signs or interpretive panels would be installed along the Mojave Road.

TRAILS

There would be no trail planning or development under this alternative. No trailheads or parking areas for trail use would be added.

TRAINS

Passenger train service through the preserve was discontinued by Amtrak in 1997. Mojave has no programs in place to seek visitor access by train under this alternative. Freight trains continue to use the railroad lines that traverse the preserve.

ADMINISTRATIVE OPERATIONS AND FACILITIES

ADMINISTRATION

Headquarters would continue to be located at Barstow. The maintenance operation would continue to be overseen from Barstow, with satellite offices in Baker and Hole-in-the-Wall. The new Baker facility would be the main field office and shop. A field office for maintenance, visitor protection, and interpretation staff would be added for the Baker housing and maintenance yard. Improvements would continue to be made to this facility to increase its capability to provide services. The Hole-in-the-Wall operation would be improved somewhat but would remain a secondary support facility. Fire protection services would continue to be located at Hole-in-the-Wall, in cooperation with the Bureau of Land Management.

EMPLOYEE HOUSING

No additional employee housing would be added in the preserve. Several NPS-owned houses in the preserve are unsuitable for employee housing. The cost of upgrading homes to meet NPS housing requirements would be evaluated, and where conditions warranted, some houses might be adapted for employee housing. Before upgrading existing acquired homes or constructing new housing for employees, the preserve would evaluate the location of the housing and make a determination about whether private housing elsewhere within a one hour drive could serve the same need Employee housing would not be provided in Needles or Barstow. Since housing in Baker is limited, employees would continue to occupy NPS-owned double-wide mobile homes. New housing at Baker would not be constructed if adequate private housing became available in the community. Dormitory-style housing for a crew of 16would remain inadequate at the Hole-in-the-Wall fire center. The total housing units would be the minimum necessary to meet the mission of the preserve.

SOLID WASTE DISPOSAL

Solid waste would continue to be hauled to an approved site outside the preserve. In 1997, state law required closure of the Baker landfill. Federal law prohibits new landfills in any unit of the national park system.

EDUCATION AND RESEARCH CENTERS

The Granite Mountains Natural Reserve and the Desert Studies Center at Soda Springs operate under informal agreement with the preserve. The National Park Service has been working to develop cooperative management agreements with the California State University Consortium through the Trustees of the California State University (CSU) and the University of California. Research and educational activities consistent with the provisions of this title and the laws generally applicable to units of the National Park Service would continue. No restrictions exist for visitor use of public lands. CSU would continue to maintain all facilities at Soda Springs except the main entrance road from Interstate 15 to the facility gate, the interpretive shelter and associated parking lot, restrooms, and the path. A nomination form for the Soda Springs Historical District is being prepared for the National Register of Historic Places. If accepted on the register, management of the facility could be affected. The discharge of weapons would continue to be prohibited in Granite Mountains Natural Reserve by San Bernardino County ordinance.

LAND OWNERSHIP AND USE

The preserve regulates nonfederal rights on federal lands through existing National Park Service and other regulations, as described below.

PRESERVE BOUNDARY AND AUTHORIZED ACREAGE

Section 502 of the California Desert Protection Act established the preserve and designated the authorized acreage at approximately 1,419,800 acres. The Congressional maps delineating the boundary of the preserve and referred to in section 502 are dated May 17, 1994, are often commonly called the "S-21 Maps." This set of 21 map sheets provided the basis for the preparation of the official boundary maps and legal description by the NPS (see appendix C of the land protection plan). The National Park Service prepared the official boundary maps (seven map sheets dated July 1996) according the section 504 and submitted them to Congress in August 1996, completing the process of preparing official boundary maps of the Preserve. These maps are on file with the superintendent for inspection (see Figure 2).

The authorized acreage of the preserve identified in section 502 was an estimate based on calculations done manually, and may have excluded private lands in Lanfair Valley. Creation of a digital boundary allowed the acreage to be more accurately calculated. The boundary map submitted to Congress reflects a more accurate total acreage of 1,589,165 acres of land included within the external boundary of Mojave. The land protection plan (appendix C) provides a breakdown of the land ownership.

The National Park Service intends to locate some facilities outside the preserve, consistent with the existing management direction and proposed actions identified in this plan. This would include, but is not limited to, the headquarters site in Barstow, visitor facilities in Baker and Needles and employee housing in Baker.

WILDERNESS

The process of delineating final wilderness boundaries is provided in title VI of the CDPA. This process of "interpreting" the S-21 wilderness boundaries is nearly complete. The wilderness boundaries in Figure 2 reflect the preliminary final interpretation, however, the legal descriptions have not yet been prepared. Once completed, final wilderness boundary maps would be submitted to Congress. It is assumed that the actual wilderness acreage may deviate from the approximate acreage of 695,200 acres estimated in section 601 of the act.

The focus of wilderness management would continue to be on occasional overflights and other monitoring efforts to identify illegal uses. Wilderness would be considered in all compliance and permitting actions and appropriate mitigation would be applied.

LAND ACQUISITION

Under this alternative the preserve would continue the present course, which is to regulate nonfederal rights through existing National Park Service or other regulations. National Park Service purchase of private land is not an ongoing or active program, but it might occur on an opportunity basis from willing sellers. Donations and exchanges would be pursued from willing sellers if funding permitted, and third-party acquisitions from willing sellers would be encouraged. State school sections are actively being exchanged by the Bureau of Land Management pursuant to the CDPA direction.

MINERAL DEVELOPMENT ACTIVITIES

The preserve was established by Congress with the provision that mining activities may occur on valid existing claims under all applicable laws and regulations administered by the National Park Service (sec. 508). The Mining in the Parks Act of 1976 (P.L. 94-429) prescribed that all activities resulting from the exercise of valid existing rights on patented and unpatented mining claims within any unit of the national park system shall be subject to regulations developed and administered by the National Park Service. The regulations governing mining on all patented and unpatented claims in park units are found at 36 CFR Part 9A, which requires operators to file a plan of operations with the National Park Service for all mineral related activities. Proposed mining operations must also meet the approval standards provided in the regulations and post a performance bond equivalent to the cost of reclamation before an operation may proceed.

The CDPA also imposes a requirement that validity of unpatented claims be determined prior to approval of any operation (sec. 509). It also requires analysis of the environmental consequences of mineral extraction and the estimated acquisition costs, and the submission to Congress of recommendations on whether any valid or patented claims should be acquired.

Congress closed Mojave to all new mining claim location and all other forms of appropriation and disposal. Section 507 of the CDPA withdrew the area from all forms of entry, appropriation or disposal under the public land laws; from location, entry and patent under the United States mining laws; and from disposition under all laws pertaining to mineral and geothermal leasing and the sale of mineral materials. This provision of the act is subject to valid existing rights.

The National Park Service also regulates mineral development on valid nonfederal oil and gas interests in accordance with 36 CFR Part 9B. This involves property where the surface is held by the federal government, but the mineral rights were retained by the private party when the land was acquired.

Whenever a proposed mineral development fails to meet the regulatory approval standards and no alternative development scenario is feasible, the National Park Service would initiate acquisition of the mineral rights.

ABANDONED MINES

The preserve has an inventory of abandoned mining properties that was generated from existing information in U.S. Geological Survey (USGS) and Bureau of Mines databases. Additional surveys are currently underway to further inventory abandoned mineral properties. The National Park Service is working to remove hazardous materials from several sites in the preserve.

SAND AND GRAVEL USE FOR ROAD MAINTENANCE

Building materials (sand, gravel, and cinders), geothermal resources, and oil and gas on federal lands are not available for extraction or sale. Use of borrow materials for road maintenance must conform with existing NPS policy, which requires materials to be obtained from sources other than the preserve unless it is economically infeasible. The preserve is preparing a cooperative agreement with the San Bernardino County to allow limited use of existing borrow sites to maintain roads in the preserve.

GRAZING/RANGE MANAGEMENT

The Mojave National Preserve's enabling legislation contains the following statement:

> The privilege of grazing domestic livestock on lands within the preserve shall continue to be exercised at no more than the current level subject to applicable laws and National Park Service regulations.

The "current level" is defined for each allotment as the number of AUMs authorized for that allotment within the Mojave National Preserve upon its establishment on October 31, 1994, the day the legislation was signed into law by the President.

The National Park Service has issued special use permits to five ranchers for continuation of grazing cattle on ten previous BLM grazing allotments that are now partly or wholly within the boundary of the preserve. The allotment boundaries, AUMs, and the rules and restrictions (season of use, supplemental feeding, forage utilization levels) are the same as those that existed when the Bureau of Land

Management managed the preserve lands before the passage of the California Desert Protection Act in October, 1994. Seven of the allotments have boundaries that are on federal land managed partly by the National Park Service and partly by the Bureau of Land Management.

The National Park Service monitoring of the range or ranchers' compliance with permit conditions, is currently limited. The rancher's pay grazing fees to the National Park Service based on the BLM fee schedule ($1.35/AUM or a total for all 10 allotments of about $50,000/year). The preserve would continue to handle requests for the replacement or installation, of range improvements with assistance from other units of the national park system.

Grazing is allowed under the existing U.S. Fish and Wildlife Service's Biological Opinion on the Desert Tortoise, amended in March 1997, until this plan is completed or April 2000, whichever occurs first. The U.S. Fish and Wildlife Service concluded in its opinion that the NPS interim livestock grazing program would not be likely to destroy or adversely modify designated desert tortoise critical habitat because of the following:

1. The National Park Service would continue to permit grazing under its current program while preparing a management plan, with formal consultation with the U.S. Fish and Wildlife Service before the plan was approved.

2. The adverse effects of the proposed grazing program on desert tortoise critical habitat have been minimized by the implementation of the terms and conditions of existing biological opinions (see pp. 14-21, FWS 1994; pp. 19-29 FWS, 1994A, and pp. 24-32 FWS 1993).

3. In addition to the measures already implemented to minimize the effects on tortoises and their critical habitat, the National Park Service would continue to implement recovery actions for the desert tortoise (e.g., acquiring private and state land and retiring grazing privileges) while the plan is being prepared.

The Endangered Species Act directs federal agencies to use their authority to further the purposes of the act by carrying out conservation programs for the benefit of endangered and threatened species.

The U.S. Fish and Wildlife Service recommends that the following measures be implemented:

1. Until completion and approval of the plan, the National Park Service should ensure the removal of as many of the following human activities detrimental to the desert tortoise as possible: (a) off-road vehicle (ORV) activities, (b) competitive and organized events, (c) landfills and any other surface disturbance that would diminish the capacity of the land to support desert tortoises, (d) grazing by cattle, (e) grazing by burros, (g) harvesting of vegetation, (h) dumping and littering, (release of captive or displaced desert tortoises, and (j) collection of wild desert tortoises.

2. The National Park Service should close and rehabilitate of unnecessary roads within critical habitat.

3. The Bureau of Land Management and the National Park Service should initiate or complete studies to quantify the destruction of tortoise burrows and trampling of tortoises by livestock.

PLAN IMPLEMENTATION

Under this alternative, priorities for allocating staff and funding are determined year by year according to the strategic planning process. The preserve's strategic plan sets five-year planning goals, but these are revised and adjusted yearly. Staff and funding would be adjusted as needed to place resources where most appropriate to meet the demands. Activity level planning would be pursued, with most of the identified plans being completed within five years.

Funding would be pursued from a variety of special funds (both governmental and private) to provide resources for accomplishing the goals and objectives of the strategic plan and activity plans. This approach would result in an unpredictable implementation schedule.

The existing preserve operating base in FY98 is approximately $2.5 million.

TABLE 4: NO-ACTION ALTERNATIVE EXISTING STAFFING

FUNCTION	EXISTING STAFFING
Management team	3.0
Administration team	6.0
Resource mgmt. team	5.0
Visitor services team	9.0
Special uses team	5.0
Maintenance team	4.0
Fire management*	4.0
TOTAL	36.0

*In FY99 the fire management program includes one permanent subject-to-furlough and six seasonal (6 month) positions hired by the National Park Service. The Bureau of Land Management also provides 6 seasonal positions. The entire program is funded with FIREPRO money and is not included in the preserve operating base. The annual cost in FY98 was $144,626.

ALTERNATIVE 3: OPTIONAL MANAGEMENT

GENERAL DESCRIPTION

This alternative is the same as the proposed action except that it provides for a greater emphasis on visitor services and facilities. However, this alternative does not include restoration of the depot, allowing those funds to be utilized for other visitor facilities. Only those sections that are different from the proposed action are included below.

VISITOR USE, SERVICES, AND FACILITIES

INTERPRETIVE AND ORIENTATION PROGRAM

Increased contact between NPS interpretive rangers and visitors would be sought to raise visitors' understanding of the preserve. There would be more focus on guided interpretation than in the proposed action.

INTERPRETATION AND ORIENTATION FACILITIES

The National Park Service would try to work with other federal land management agencies to establish multiagency staffing of information centers at Baker and Needles. This could provide more diversity and depth to the information available to the public. A new information center might be constructed or leased at Baker if the addition of other agencies resulted in a need for a larger building.

Kelso Depot

Funding would be sought to protect Kelso Depot from fire, earthquakes, and further deterioration. The interior would not be open for use. The depot would be interpreted through exterior exhibits and interpretive panels. A staffed information center may be added to serve visitors. Historical landscaping would be restored. Permanent comfort stations may also be added and parking areas better defined (see appendix B: Kelso Depot Development Concept Plan).

ROAD AND TRAILSIDE DISPLAYS

This alternative would increase emphasis on wayside exhibits and interpretive displays to educate the public on the significant resources in the preserve. There would be more focus on guided interpretation than in the proposed action. Visitors would receive more direction and information in the field, with less emphasis on exploration and self-discovery than in the proposed action. Trailhead parking displays would be established as needed.

EDUCATION AND OUTREACH

Soda Springs

Education and outreach at Soda Springs would be the same as under the proposed action except that the interpretive plan might include ranger-guided tours of key features at Soda Springs. A small facility to support a staffed interpretive program would be built to serve visitors directed here from Interstate 15. Interpretation could focus on the history and natural history of Soda Springs and Zzyzx. The facility would initially be staffed only during periods of heavy use, with the frequency of staffing increasing if visitation increased. A development concept plan would be prepared to coordinate proposed and existing visitor facilities. The preserve would increase its use of the Soda Springs facilities for visitor and administrative functions.

Hole-in-the-Wall

In addition to the actions included in the proposed action, the interpretive and development concept plans would include consideration of a nature center to serve the children of overnight campers or day use visitors. It could also serve groups staying overnight at the group camping area. The size of this center would be scaled to the anticipated use levels and might be a section of the relocated ranger station/contact station. This facility could complement the preserve's outdoor education programs. Interpretive trails might be created and tied to the nature center to provide additional opportunities for field education. NPS staff would coordinate with staff at Providence Mountains State Park on interpreting the local resources.

RECREATIONAL DAY USE ACTIVITIES

Hunting, Trapping, and Fishing

Hunting, trapping, and fishing under this alternative would be the same as the proposed action, except there would be no restrictions on species hunted or trapped. Dogs could be used in accordance with CDF&G regulations.

DEVELOPED CAMPGROUNDS

If visitation and demand for campsites increased, the number of campsites in developed campgrounds would be increased, but the density would remain the same. Locations for a group campground at or near to the Mid Hills campground would be considered to provide a cooler summer alternative to the Hole-in-the-Wall group area. Some aspects of campground management could be contracted out to the private sector to reduce future NPS workloads.

BACKCOUNTRY/ROADSIDE CAMPING

Camping in Areas of Desert Tortoise Critical Habitat, Mines, Cultural Sites, and Other Sensitive Areas

In sensitive areas designated as critical habitat for the desert tortoise, vehicle-based roadside camping would be confined to a limited number of designated campsites with metal fire rings or campsite markers to identify them for use. Previously used areas would be considered first for designation. The designation of campsites would come after an inventory of natural and cultural resource conditions and existing campsites to determine the best locations. Campsites would be considered closed unless designated.

Camping at High Use Areas

Highly used areas would be improved by such additions as metal fire rings and picnic tables at each campsite except along the Mojave Road. Other improvements such as restrooms and vehicle barriers might be added later to reduce adverse impacts on natural resources. These semi-developed campgrounds usually would not have water, trash receptacles, or paved roads.

ROADS AND CIRCULATION

MOJAVE ROAD

Business permits would be allowed for commercial guided tours of the Mojave Road. Large groups would be allowed to camp in any disturbed area along the Mojave Road corridor after they obtain a special use permit. The National Park Service would use this permit system to manage use of the road so that the quality of the experience could be protected from problems associated with too many vehicles on the road at a time in any given area. The number of groups using the Mojave Road would be limited to minimize impacts on the road and campsites. To protect the Mojave Road, the National Park Service would also limit the number of vehicles allowed to travel the road each year. This limit would be created within the first few years after this plan is completed. The limit would be based on an evaluation of the condition of social, cultural, and natural resources with no more than 1,000 vehicles added to the annual number of vehicles using the road at the time of the evaluation. This limit would be reevaluated and adjusted as needed. The final management of use of the road would be determined in the backcountry/wilderness management plan.

ADMINISTRATIVE OPERATIONS AND FACILITIES

ADMINISTRATION

In addition to the information center in Needles, office space would be provided on the east side of the preserve to serve resource management, visitor services, and maintenance functions.

EMPLOYEE HOUSING

The focus of this alternative would be to construct new housing in the preserve to place employees close to their work. Less emphasis would be placed on rehabilitating existing buildings that the government might acquire by purchase or donation. If it was determined that renovation would not be cost-effective, new construction would be undertaken. Before upgrading existing acquired homes or constructing new housing for employees, the preserve would evaluate the location of the housing and make a determination about whether private housing elsewhere within a one hour drive could serve the same need, and whether the total housing units are the minimum necessary to meet the mission of the preserve.

EDUCATION AND RESEARCH CENTERS

Coordination between the University Consortium and the National Park Service would be sought to minimize conflicts between guided tours and research or education activities.

The National Park Service and the University Consortium would develop a cooperative program for educating and informing the public on the purpose of Granite Mountains Natural Reserve and the need for resource protection and respect for long-term research plots in the natural reserve. Unstaffed entry stations would be placed at key entry points to public use areas adjacent to and in the natural reserve. Each station would contain features such as bulletin boards where visitors could get information on the natural reserve's purpose and research activities and resource protection standards for the use of the natural reserve. Visitors would be asked to self-register at these stations on a voluntary basis to give the National Park Service information about visitor use.

The National Park Service would work with the University Consortium to monitor sections of the natural reserve that receive public use to determine if adverse impacts related to visitor use were occurring. Information gathered from visitor use registers and resource surveys would be used to support future management decisions intended to preserve the quality of the natural and cultural resources.

LAND OWNERSHIP AND USE

LAND ACQUISITION

Private land or interests would be acquired only on an opportunity basis, such as if the National Park Service were approached by a landowner wanting to sell, or if a development project would adversely affect park resources, aesthetics, or solitude. The exchange for state school sections would continue.

MINERAL DEVELOPMENT ACTIVITIES

The preserve would administer mineral development activities under existing laws and regulations applicable to such activities. This action is the same as the existing management alternative. Please refer to that alternative for a complete description.

The preserve would also undertake a sensitive resource analysis based on an objective analysis of physical, biological, cultural and visitor use values relative to projected mining impacts. This analysis would examine potential mineral development scenarios that would be likely to occur on each property based on the deposit, and assuming operator performance standards and specific mitigation would be applied to protect resources and values. The results of this analysis would be used to identify areas of the preserve where mineral development would be inconsistent with the mission of the preserve and likely mineral development may not be able to meet 36 CFR Part 9A or 9B approval standards. In these areas, funding to acquire valid outstanding mineral rights would be pursued.

GRAZING/RANGELAND MANAGEMENT

Grazing would be managed in the same way as the proposed action, except as presented below:

- Limited new range developments might be permitted, and replaced when necessary.
- No community-based grazing management team would be sought.

PLAN IMPLEMENTATION

OPERATIONAL COSTS

The existing preserve operating base in FY98 is $2.5 million and existing staffing is 36. In order to fully implement the proposed action over the 15 year life of the plan, and assuming that above itemized activities are undertaken and visitor use of the Preserve increases, an additional 57 staff would be needed. This would require approximately $2.7 million per year for salaries, benefits and administrative expenses (space, utilities, vehicles, etc.).

The estimated costs of acquiring private lands and mining claims under this alternative are not yet available. No comprehensive evaluation of land acquisition costs has been undertaken in accordance with NPS policy and therefore cannot be estimated at this time. The cost of acquiring property involves title searches, appraisals, relocation costs, and fair market value of the property. These specific costs would be available only on a property by property basis and would need to be determined based on current market values. An approved cost estimate for the land protection alternative selected would be prepared at a later date by the Washington office.

TABLE 5: OPTIONAL ALTERNATIVE COST SUMMARY

Activity	Gross Const. Costs	Const. Planning Costs	Total Project Costs	Phase
• Construct tortoise fencing (est.100 miles) @ $21,000/mile	$2,100,000	$525,000	$2,625,000	I
• Remove feral burros (1,800 animals @ $1,200/burro)	N/A	N/A	$2,160,000	I
• Renovate and upgrade acquired housing in preserve for employee use (per NPS housing standards - 5 units)	$393,000	$75,000	$468,000	I
• Kelso Depot stabilization, fire protection, landscaping, utilities, parking, restrooms, separate info center	$1,960,000	$374,000	$2,334,000	I
• Plan, produce, and install exterior interpretive exhibits at Kelso Depot	$210,000	$40,000	$250,000	I
• Roadside displays/interpretive exhibits, including parking lot (15 locations)	$157,000	$30,000	$187,000	I
• Trailhead interpretive displays, information kiosks, and parking (five locations)	$39,500	$7,500	$47,000	I
• Construct office space in Needles (1,000 sq. ft.)	$170,000	$32,500	$202,500	I
• Increase accessibility to campsites and comfort stations at Mid Hills campground (10 sites)	$38,000	$7,000	$45,000	I
• Install unstaffed entrance kiosks at 3 locations at Granite Mtns. Reserve; install interpretive panels	$39,500	$7,500	$47,000	I
• Replace comfort station at Soda Springs, construct new info center, interpretive displays, and exhibits	$330,000	$63,000	$393,000	II
• Add group site at Mid Hills, including access road, parking, and composting toilet	$141,000	$27,000	$168,000	II
• Develop an additional 25 sites at existing campgrounds with additional comfort stations	$393,000	$75,000	$468,000	II

• Develop one new 15-site semiprimitive campground with fire rings, picnic tables and pit toilet	$61,000	$12,000	$73,000	II
• Provide picnic tables and fire rings at heavily used backcountry sites; add composting toilet at 2 sites	$246,000	$47,000	$293,000	II
• Construct central maintenance facility (1,400 sq. ft. work bldg. with office, restrooms, vehicle yard	$285,000	$54,000	$346,000	II
• Replace or relocate HIW info center; add nature center and interp. trails; enlarge fire dormitory and garage	$1,409,000	$269,000	$1,678,000	II
• Construct new housing in Baker to replace existing mobile homes (5 units)	$364,000	$70,000	$434,000	II
• Construct new housing at Kelso and HIW (four 2-bedroom duplexes; two 3-bedroom homes)	$522,000	$95,000	$617,000	II
• Restore abandoned mine sites	$5,240,000	$1,000,000	$6,240,000	III
TOTALS	$14,098,000	$2,810,500	$19,075,500	

PHASES

I	1-5 years
II	6-10 years
III	spread evenly over 15 years

The construction and planning cost estimates in table 5 are conceptual estimates only. These costs are based on similar types of facilities and past NPS experience derived from contract data. The estimates include indirect costs added to cover such things as design services, contract supervision, and contingencies. They also take into account the cost of contracting for such services in a remote park setting, seasonal constraints, labor availability, and wage rates. The planning costs are calculated at 25 percent of gross construction costs and cover site-specific project planning and compliance. The costs are based on 1998 values.

AFFECTED ENVIRONMENT

NATURAL RESOURCES

AIR QUALITY AND VISIBILITY

The Mojave Desert Air Quality Management District (MDAQMD) manages and enforces the Clean Air Act's air quality standards in the Mojave National Preserve. The district includes the desert portion of San Bernardino County.

Congress established the Prevention of Significant Deterioration program as part of the Clean Air Act. To facilitate the implementation of this program, an area classification scheme was established. This classification scheme has class I receiving the highest degree of protection with only small amounts of certain kinds of additional air pollution (sulfur dioxide and particulate matter) allowed. The other two areas are class II, which allows moderate increases in certain air pollutants; and class III, which allows a large amount of new air pollution (Congress has yet to designate any class III areas). There are no class I areas in the California Mojave Desert. Mojave National Preserve is a class II "floor" area, meaning that it may never be redesignated to class III.

FEDERAL AND STATE NONATTAINMENT AREAS

The Clean Air Act developed national ambient air quality standards for a finite number of pollutants called "criteria pollutants." The criteria pollutants are: sulfur dioxide, carbon monoxide, total suspended particulates, nitrogen oxides, lead, ozone, and particulate matter less than 10 microns in diameter (PM_{10}). State of California standards, which are stricter than federal standards, include additional standards for hydrogen sulfide and particulate sulfates.

The Environmental Protection Agency has classified the Mojave National Preserve as a nonattainment area for ozone and PM_{10} standards. Nonattainment areas are areas that are not in compliance with the National Ambient Air Quality Standards, and therefore must reduce pollution to reach compliance. Nonattainment requirements include reasonable controls on existing stationary sources, most stringent controls on new sources, emission offsets, transportation control plans (including inspection and maintenance), and sanctions for failing to submit a plan.

POLLUTION SOURCES

Visibility is probably the most important air quality resource in the desert region, and it is the most easily affected by activities that generate dust (especially fine particulates) and sulfur dioxide. Visibility impacts occur from long-range transport of pollutants from as far away as the San Joaquin Valley and the Los Angeles basin (RESOLVE study 1988, cited in BLM 1995).

Nearby sources of emissions include the Army's National Training Center at Fort Irwin; Viceroy Mine near Searchlight, Nevada; the Mojave Generation Station near Laughlin, Nevada; Molycorp Mine and Stateline Power Generation Station near Primm (Stateline), Nevada; and vehicle traffic on Intestates 15 and 40.

Local pollution sources in the desert consist primarily of particulate matter from off-road vehicles, windblown soil, mining operations, livestock grazing, and agricultural activities. These sources have left certain areas denuded or sparsely vegetated, allowing wind erosion to occur and air quality to suffer and occasionally causing violations of particulate standards at many locations.

NIGHT SKY

The night sky of Mojave National Preserve is dark and offers visitors the chance to enjoy stargazing mostly untainted by artificial light reflection. However, the northern and southern boundaries are interstate highways. Traffic on these highways and the lights from Baker, Primm, and Laughlin are beginning to have a noticeable adverse effect on the night sky.

NOISE

Vehicle noise can be heard in the planning area. For example, the Kelbaker, Kelso-Cima, Morning Star, Ivanpah Roads in the Mojave National Preserve are connectors with I-15 and I-40. About 8,000-11,000 vehicles use these north-south connector roads each month. It is believed that many people using these roads are California residents living south of the preserve (for example, Palm Springs and Twentynine Palms) who use the preserve roads as a short cut to Las Vegas and other areas outside California. The I-15 (north of the Yermo Inspection Station to the Stateline) average daily traffic is between 26,000 and 35,000 vehicles (CalTrans, 1996). Peak northbound traffic along this stretch occurs on holiday eves or Fridays; peak southbound traffic occurs on Sundays.

Vehicle noise is generally not an issue within the preserve in spite of the many and heavily used roads (I-15 I-40, and NPS major paved roads). Because of the preserve's vastness, most areas are well away from traffic and its noise.

Other areas where localized noise occurs are at the Razor Open Area, adjacent to the western boundary of the preserve, the Union Pacific and Santa Fe rail lines, and mining operations.

OVERFLIGHTS

The preserve is within 100 miles of five U.S. Department of Defense facilities having air operations: Fort Irwin Military Reservation, U.S. Naval Weapons Center, China Lake, Marine Corps Air-Ground Combat Center, and Air Force Bases at Edwards and Nellis. Military aircraft from these facilities occasionally use preserve airspace. Although aircraft noise does not appear to affect wildlife, visitors to the area often react adversely to jet noise and sonic booms. In addition, some booms have caused damage to natural and cultural resources (NPS 1988).

Parts of the preserve are within a joint service restricted airspace complex designated as a military operations area (R2508) that permits aircraft to fly at speeds exceeding 250 knots and at altitudes 200 feet above ground level or higher (DOD 1995). The military operations area is used on a daily basis by Navy and Air Force aircraft. Low-level overflights of various military aircraft are occasionally observed in the preserve.

Title VIII of the California Desert Protection Act, 1994, contains the following provision:

> Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard within such units.

WATER RESOURCES

GROUNDWATER

Groundwater is found underneath most of the preserve and varies greatly in depth and quality. The Mojave River is the primary subsurface water source for the preserve (BLM 1996). The many groundwater basins in the preserve are recharged from surface and subsurface infiltration. Depletion of groundwater basins and diminishing water quality are concerns that were expressed at public meetings. Groundwater is the preserve's principal source for desert springs, seeps, and a few ephemeral streams, and its only perennial spring, Piute Creek. The maintenance of groundwater quality and quantity is critical to the survival of desert surface waters and their associated plant and animal life.

There are two major areas of concern for Ivanpah Dry Lake. One is groundwater depletion, as the water is being used to maintain three golf courses and to supply Molycorp's mining operation at Mountain Pass. Water levels in the Ivanpah Dry Lake basin have declined an average of about 2 feet per year for the past 50 years (Molycorp 1996). This depletion did not include the golf courses that were completed in 1996. Molycorp is also proposing to enlarge its mining operations, including a substantial dewatering of new mine pits. This dewatering could cause the springs to go dry in the Clark Mountain segment of the preserve. The other concern is the contamination of Ivanpah Dry Lake's surface and groundwater from Molycorp's legal and illegal mine waste discharges.

Another site near the preserve where the rate of groundwater use appears to exceed normal groundwater recharge is the Castle Mountain Mining Project Viceroy Gold Mine, which is adjacent to the preserve's eastern boundary. At Castle Mountain the average groundwater withdrawal has been over 400-acre feet per year since 1996 (BLM 1997). This mining operation has proposed to continue mining for another 10 years past its present operation, until about 2010 (BLM 1997). Well data has shown a continued drop in water levels, indicating that the withdrawals exceed groundwater recharge.

OTHER WATER SOURCES

The small springs and seeps in the preserve offer isolated and limited water for plants, wildlife, or domestic or commercial purposes. Some springs produce potable water, but overall water quality is poor because of high dissolved mineral concentrations (BLM 1996). Over 200 springs and seeps have been identified in the preserve (King and Casebier 1981). Many, if not most, have been altered by the installation of retention dams, pipelines, and troughs for livestock use. Most are also available for wildlife and burro use. In the eastern portion of the preserve is a 1-mile perennial stream called Piute Creek. Recorded spring outlet flows (measured monthly since June 1988) have ranged from 21 gallons per minute (gpm) in November 1991 to 58 gpm in December 1993. The average over this time was 42 gpm (Viceroy Gold, 1997). This stream, only perennial stream in the preserve, is an important wildlife water source as well as a popular recreation site.

Some people have said that historic and present mining and cattle ranching have resulted in less water for wildlife consumption being available now than was available about 220 years ago, when the first Europeans entered the Mojave Desert. The literature offers no evidence to support these claims; rather, it indicates that there may be more water now. Accounts from the late 18th and early 19th centuries by Garces and Jedediah Smith and from surveys conducted by Thompson for the USGS in the early 20th century indicate that water holes were few and far between. The number of springs and seeps that are now known is far greater than the early inventories recorded by Thompson. With the addition of wells and guzzlers, it may seem that there is more water now than in the past.

Water wells have been drilled primarily for domestic use and livestock needs, but a number of wells have also been drilled for mining use. Viceroy Gold Mine has developed a well field that is adjacent to and within the preserve. This well field is within a 9-square mile area located northwest of the mining site. Viceroy is permitted to pump 725 acre-feet per year, but it has been averaging about 400 acre-feet (about 11 million gallons per month) since 1995 (BLM 1997).

Water wells have been drilled specifically for visitor and administration use at the Mid Hills campground and Hole-in-the-Wall campgrounds.

WATER RIGHTS

Initial research on outstanding water rights in the preserve at the State Water Resources Control Board in Sacramento revealed that there are approximately 110 appropriated water rights claims on 97 water sources (springs, seeps, streams, wells) in the preserve. Many of these were obtained by ranchers who lease grazing allotments. See attached Land Protection Plan in Appendix C for a complete list.

VEGETATION AND WILDLIFE

EXOTIC SPECIES

Exotic species can include both plants and animals. They are generally defined as those species that occur in a given place as a result of direct or indirect, deliberate or accidental actions by humans. The exotic species introduced because of such human action would not have evolved with the species native to the place in question and therefore would not be a natural component of the ecological system characteristic of that place. Examples of exotic species in the preserve are wildlife such as burros and chukar and plants like tamarisk and Russian thistle.

Vegetation

Tamarisk, Russian thistle, and introduced annual grasses (from Europe and Asia) are some of the more pernicious exotics within the Mojave National Preserve. These species often out-compete native vegetation, subsequently eliminating or displacing natives and associated native animals. Annual plants such as introduced grasses and Russian thistle often cause an unnatural increase in the amount of dried material available as wildfire fuel.

The tamarisk (*Tamarix ramossissima*) or salt cedar, an introduced shrub or small tree 5 to 20 feet tall, is an opportunistic invader of moist areas. Both the Bureau of Land Management and the National Park Service have ongoing control programs that are attempting to manage this invasive plant. Continuing control is needed to prevent this weedy tree from outcompeting and eliminating native vegetation. A larger, less invasive relative, the athel (*T. Aphylla*), has been planted (typically as a windbreak or sand-break) in a number of locations in the preserve (e.g., near Kelso Depot).

Russian thistle (commonly called tumbleweed) is common in many disturbed areas in Mojave National Preserve, such as at old mining sites and along roadsides.

Introduced annual grasses such as *Bromus* and *Schismus* species are serious pests when mature (Hitchcock and Chase 1971). "The narrow, sharp-pointed minutely barbed florets (or fruits) with their long rough awns work into the eyes, nostrils, and mouths of stock, causing inflammation and offer serious injury" (Hitchcock and Chase 1971). The increase of these grasses throughout much of the arid west is believed to be an important contributing factor in the increase in desert wildfires, which were uncommon at one time.

Animals

Chukar. The Chukar (*Alectoris graeca*), an upland game bird popular among hunters, was first introduced into California (from India) in 1932 (Mallette c.1970). Between 1932 and 1955, more than 52,000 birds were released by the California Department of Fish and Game (Mallette c.1970). The birds prefer rocky open hills and flats. Sightings have been reported from below sea level to above 12,000 feet in the White Mountains and Sierra Nevada. The animal is abundant in parts of the preserve.

Rocky Mountain Mule Deer. The California Department of Fish and Game introduced the Rocky Mountain mule deer (*Odocoileus hemionus hemionus*) into the New York and Providence Mountains of the preserve in February and March of 1948 from Arizona (Dasmann 1968 and Burke 1997). Nine bucks and 31 does were released. The first authorized hunt of this population was in 1955. The department estimates that about 25 deer are taken per year (Burke 1997). The population has remained relatively stable since the first introduction. Tag returns for buck kills in Northeastern San Bernardino County were 18 animals (see table 8).

Burros. Burros were used little on the Southwest between 1530s, when the Spanish explorers first brought them to North America, until the 1850s, when the discovery of gold in California led to the burro becoming the prospector's principal means of transportation (Douglas and Leslie 1996). When mines played out or when motorized vehicles became the more practical mode of transport, the miners' burros were released into the wild (NPS, 1979).

From about 1920 to the 1960s, burro populations were kept at low levels by government agencies like the National Park Service and by the public by organized and random shooting of the burros. These efforts to reduce or eliminate feral burros from national park lands were park managers' response to the burros damaging park resources and changing the ecological composition at the expense of the park's native biotic communities.

> Ecological niches to which Pleistocene equids related do not exist today, and no other animals in the contemporary North American fauna would have the same niche relationships as the modern-day equids, with or without the latter's presence (NRC 1982).

In the 1950s the states of Arizona and California passed burro protection laws that limited the killing of these animals by private citizens. In the late 1960s, Grand Canyon National Park was prevented by public outcry from continuing the 40-year custom of shooting burros (NPS, 1979). In 1971 the Federal Wild Free-Roaming Horse and Burro Act was passed. This act limited the killing of horses and burros on public lands administered by the Bureau of Land Management and the U.S. Forest Service. This law does not apply to NPS lands.

Before the passage of the California Desert Protection Act, the Bureau of Land Management managed 13 herd management areas (HMAs) in the California Desert District; it now manages nine herd management areas. The four former BLM herd management areas are now within NPS units. Of the Bureau of Land Management's nine HMAs, four are outside the NEMO planning area and the other five HMAs abut the expanded National Park Service lands. Death Valley National Park and Mojave National Preserve manage burros on lands recently acquired from the Bureau of Land Management at the same population numbers as established by the Bureau of Land Management before the California Desert Protection Act was passed. These management numbers are 297 burros and 9 wild horses for Death Valley and 130 burros for Mojave National Preserve.

The existing population levels for Mojave National Preserve and Death Valley greatly exceed the BLM's management levels. The estimated population is about 1,200 animals in Mojave National Preserve, and at least 400 burros in Death Valley. Mojave's current estimate is based on a September 1996 survey (Haley, 1996) that counted approximately 1,400 burros, adjusted to include a typical 15% annual population growth and the removal of 600 burros in 1997. Death Valley's figures are from a 1997 burro survey. Only one part of the preserve is adjacent to a BLM Herd Management Area, the Clark Mountain Herd Management Area. There are no wild horses in Mojave National Preserve. A total of 600 burros were captured and placed for adoption in September 1997. Alternatives for future management strategies are presented in this document.

Clark Mountain is the only HMA adjacent to the preserve. Approximately 45% of this HMA is now within the preserve boundary. The herd management level is 44 burros. The Bureau of Land Management's October 1996 population estimate is 202 burros.

TABLE 6: WILD HORSE AND BURRO POPULATION DATA FOR THE PLANNING AREA

	Horses	Burros
BLM's Pre-CDPA Management Levels	267	843
Post-CDPA Management Levels (Does not include burros and horses on NPS Land)	247	307
Estimated Population in entire California Desert District (BLM 1996 Population Estimates)	411	2,343
Estimated Death Valley National Park Populations (BLM herd management level)	12 (9)	350-550 (297)
Estimated Mojave National Preserve Populations (BLM herd management level)	0 (0)	1,300 (130)

On February 28, 1995, the superintendents of Death Valley National Park and Mojave National Preserve agreed to an interim management policy for burros on lands formerly managed by the Bureau of Land Management. The policy is to maintain the BLM-approved management levels until a final decision is derived through the formal planning process, which includes the preparation and public review of this document. That level is 130 burros for Mojave National Preserve and 297 burros and 9 wild horses for Death Valley National Park.

The National Park Service estimates that at least 110 burros from Death Valley National Park and 1,100 burros in Mojave National Preserve need to be removed to reach the BLM-approved management levels. Under this interim policy all wild horses and burros removed would be captured and made available for adoption to the public.

Since many of the herd management areas are adjacent to NPS lands, this plan, the Death Valley Draft Environmental Impact Statement / General Management Plan, and the Bureau of Land Management's amendment to the California Desert Conservation Area plan will consider options that are developed with BLM and NPS interagency cooperation for wild horse and burro management in units of the national park system and on lands managed by the Bureau of Land Management.

SPECIES AND HABITATS OF SPECIAL CONSIDERATION

Within the Mojave National Preserve are confirmed populations or potentially viable habitat for 3 federally endangered, 1 federally threatened, 6 state (California) endangered and 1 state threatened plants and animals. The tables in appendix D reflect the overlap of protective designations for these and a number of endemic species. The tables note additional plants ranked as CNPS 1B and several endemic plant and animal species not formally recognized by agencies as listed or rare.

LISTED SPECIES IN MOJAVE NATIONAL PRESERVE

Federally listed species known to inhabit the Mojave National Preserve are the desert tortoise (*Gopherus agassizii*) and the Mohave tui chub (*Gila bicolor mohavensis*). Final recovery plans exist for both of these species. The southwestern willow flycatcher (*Empidonax trailli extimus*) and least Bells vireo (*Vireo bellii pusillus*) are listed birds that could periodically inhabit riparian areas such as Piute Spring but have not been verified to occur in the preserve.

California listed species known to occur in the preserve are the desert tortoise, the Mohave tui chub, and the willow flycatcher (*Empidonax trailli).* The California (or western) yellow-billed cuckoo (*Coccyzus americanus occidentalis*), normally in need of broad riparian cover, may have some, but limited potential to appear in the preserve.

There are no known federally listed or proposed plant species in the preserve. California rare plant species that occur are July gold (*Dedeckera eurekensis*) and rock lady (*Maurandya petrophila*).

The species detailed in the text below are designated as federally endangered (FE), federally threatened (FT), federally proposed threatened (FPT), California endangered (CAE), California threatened (CAT), California rare (CA Rare), Nevada critically endangered (NVCE) or Nevada threatened (NVT). Where indicated by a heading of more than one species, discussion is intended to reflect common or closely related habitat needs. Additional information about these and other species of special consideration not discussed below but known or likely to occur within NEMO can be found in appendix D.

Desert Tortoise (*Gopherus agassizii*)-FT, CAT

The range of the desert tortoise includes the Mojave and Sonoran deserts in southern California, Arizona, southern Nevada, the southwestern tip of Utah, and Sonora and northern Sinaloa, Mexico. The Mojave population of the desert tortoise (an administrative designation for animals living north and west of the Colorado River) is listed as a threatened species by the federal government and the State of California. Critical habitat for this species was designated in 1994 (FWS 1994).

The Mojave population of the desert tortoise primarily occupies valleys and bajadas characterized by scattered shrubs. The soils range from sand to sandy-gravel, though caliche soils, desert pavement, and rocky, boulder terrain are occasionally used (FWS 1994). Desert tortoises spend a large portion of the year underground to avoid extreme temperatures and, for younger tortoises, to avoid a variety of predators, such as coyotes, foxes, raptors, and ravens (BLM 1996). Tortoises generally are active during spring, early summer, and autumn when annual plants are most common and daily temperatures are tolerable. Additional activity occasionally occurs during warm weather in winter months and after summer rainstorms (BLM 1996).

As early as the 1970s biologists began to recognize that desert tortoise numbers were declining sharply in many areas. In 1984, the U.S. Fish and Wildlife Service listed the desert tortoise on the Beaver Dam Slope in Utah as a threatened species. The entire Mojave population was listed as a threatened species in 1990 (FWS 1994).

> These declines are mainly attributed to direct and indirect human-caused mortality coupled with the inadequacy of existing regulatory mechanisms to protect desert tortoises and their habitat. (FWS, 1994)

Desert tortoise habitat has been destroyed, degraded, and fragmented as a result of urbanization, agricultural development, livestock grazing, mining and roads. The removal of tortoises by humans for pets or for use as food or folk medicine is also a major factor in the decline of the desert tortoise population (FWS 1994). A respiratory disease is an additional cause of desert tortoise mortality and population decline, particularly in the western Mojave desert (FWS 1994).

In June 1994, the U.S. Fish and Wildlife Service released the *Desert Tortoise (Mojave Population) Recovery Plan*, which presented recommended prescriptions for population recovery. Also included in this document are maps of the tortoise's critical habitat and of areas where recovery actions are recommended. These areas are called Desert Wildlife Management Areas (DWMAs). Within the NEMO planning area are the Fenner, Ivanpah, and Piute-Eldorado California Desert Wildlife Management Areas.

The range of the desert tortoise in the NEMO planning area extends from the southern boundary of the preserve north to the southern boundary of Death Valley National Park. About 52% of the preserve is designated as critical habitat for this species. Critical habitat extends north of the preserve into BLM lands in the Shadow Valley north to the southern slope of the Kingston Range. Critical habitat is also found in BLM lands north of Nipton Road up to Ivanpah Dry Lake (FWS 1994).

In April 1994 the U.S. Fish and Wildlife Service issued a "Biological Opinion" for the Bureau of Land Management's interim livestock grazing program in Mojave desert tortoise critical habitat. The FWS opinion concluded that for more than 2½ years the Bureau of Land Management could continue grazing operations under the management prescriptions that were in effect before the *Desert Tortoise Recovery Plan* was published. At the end of the 2½ years the Bureau of Land Management would fully implement the recommendations of the *Recovery*

Plan. These operations were not considered likely to result in the destruction or adverse modification of designated critical habitat if the Bureau of Land Management managed grazing according to the FWS prescribed conditions. A portion of the grazing operations covered by the opinion became the responsibility of the National Park Service with the passage of the California Desert Protection Act.

In October 1996, the Bureau of Land Management and the National Park Service requested an extension of the 1994 "Biological Opinion" while this planning process is underway. On March 25, 1997, the U.S. Fish and Wildlife Service released a "Biological Opinion" for the Interim Livestock Grazing Program Proposed by the Bureau of Land Management and National Park Service in Mojave desert tortoise critical habitat (1-5-96-F-296R). This opinion allows time to complete and implement the recommendations made in this report, as well as recommendations arising from the Northern and Eastern Mojave Planning Effort. Within the Eastern Mojave Recovery Unit, the Bureau of Land Management and the National Park Service will continue to operate their grazing programs under terms and conditions described in previously prepared biological opinions (see page 7 of 3/25/97 "Biological Opinion"), and prohibit all off-highway vehicle activity, all clearing of land for agricultural uses, vegetation harvest, and landfill development within the Mojave National Preserve.

Mohave tui chub (*Gila bicolor mohavensis*)-FE, CAE

The Mohave tui chub (*Gila bicolor mohavensis*) is in the minnow family and can reach over 10 inches in length. The Mohave tui chub was listed as an endangered species in 1970 by the U.S. Fish and Wildlife Service. The Mohave tui chub is the only fish native to the Mojave River basin in California. The arroyo chub (*Gila orcutti*) was introduced into the Mojave River system in the 1930s. This exotic chub successfully hybridized with the Mohave tui chub, and by 1970 the latter fish species was believed to have been eliminated by this process of introgression. A small population of (believed) genetically pure Mohave tui chub was found at a small pond (6 feet deep and 9 feet in diameter) at Soda Springs on the western bank of the dry Soda Lake (FWS 1984). Since its rediscovery, populations have been successfully introduced to constructed ponds at Soda Lake, Camp Cady, China Lake Naval Weapons Center, and the Bureau of Land Management's California Desert Information Center in Barstow, California. The total estimated population at these four areas is between 10,000 and 20,000 fish (Mohave tui chub recovery team meeting, November 1996).

The Mohave tui chub is morphologically similar to the Owens tui chub (*G. b. Snyderi*) and the Lahontan tui chub (*G. b. obesa*) (FWS 1984). A genetic study, completed in September 1997, found that the Mohave tui chub is a distinct subspecies (May et al. 1997).

RIPARIAN DEPENDENT BIRD SPECIES WITHIN NEMO

southwestern willow flycatcher (*Empidonax trailli extimus*)-FE, sp. level CAE
least Bells vireo (*Vireo bellii pusillus*)-FE
California/western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)-CAE

Mesic habitats in the planning area are not noted for high numbers of the riparian obligates listed above (relative to their known ranges), but such habitats do provide a degree of essential foraging and nesting habitat. To date, other than along the Colorado River, the study of the vireo and flycatcher in the desert have been concentrated along the Mojave River. Small numbers of all three species have been confirmed along the Amargosa River and in Death Valley.

In May 1986, *Vireo bellii pusillus* was federally listed. Its critical habitat was designated in February 1994. Endangered status took effect for *Empidonax trailli extimus* in March 1995, and a final determination of critical habitat was made in July 1997. Listing of the willow flycatcher by the state of California is at the species level. Federal recovery planning is underway for both the vireo and flycatcher. There is no critical habitat for either species in Mojave National Preserve.

The western yellow-billed cuckoo, listed by the state of California as endangered since 1988, generally requires a broader stand of riparian growth than the vireo or flycatcher. The loss of riparian habitat is the major common factor influencing the decline of all three species. The cuckoo does not appear to be affected by brood parasitism by the brown-headed cowbird (*Molothrus ater)*, which is a severe problem for the vireo and flycatcher. In this behavior, cowbirds introduce their offspring to the nest and care of a host bird species, competing directly with the success of the host's young and sometimes eating or ejecting the host's eggs (Thelander 1994).

OTHER RARE PLANTS WITHIN NEMO

Thorne's buckwheat (*Eriogonum ericifolium* var. *thornei*)-CAE
Tecopa bird's beak (*Cordylanthus tecopensis*)-NVT
forked buckwheat (*Eriogonum bifurcatum*)-NVT
Kingston Mountain bedstraw (*Galium hilendiae* ssp. *kingstonense*)-NVT
curved-pod milk-vetch (*Astragalus mohavensis* var. *hemigyrus*)-NVCE#
July gold (*Dedeckera eurekensis*)-CA Rare
rock lady (*Maurandya petrophila*)-CA Rare

A varied complex of habitats in the planning area support the life requirements of several listed and rare plant species. Among those specifically listed above, curved-pod milk-vetch (*Astragalus mohavensis* var. *hemigyrus*), July gold (*Dedeckera eurekensis*) and rock lady (*Maurandya petrophila*) are associated with carbonate soils at least part of the time. Thorne's buckwheat (*Eriogonum ericifolium* var. *thornei*) and Kingston Mountain bedstraw (*Galium hilendiae* ssp. *kingstonense*) thrive at elevations upward of 4,000 feet in pinyon and juniper woodland. Tecopa bird's beak (*Cordylanthus tecopensis*) and forked buckwheat (*Eriogonum bifurcatum*) are lower elevation species dependent on moist alkaline soils and saline flats and rolling hills, respectively.

Realized or potential threats to these northern and eastern desert plants range from livestock grazing, trampling, mining, vehicle-use, and collection activities, as well as habitat alteration.

GAME ANIMALS

HUNTING AND TRAPPING

Hunting and trapping (under California Department of Fish and Game regulations) is allowed in the preserve. Hunted game species include mourning doves, quail, chukar, rabbits, bighorn sheep, and mule deer. These game species are not uniformly distributed in the Mojave National Preserve. The bighorn sheep prefer steep, mountainous, open terrain; the Rocky Mountain mule deer's preference is high-elevation Great Basin habitats; and the game birds' habitat of choice is the open desert areas near springs or guzzlers.

Mojave National Preserve is also one of the few places in California where bighorn sheep hunting is allowed. Limited hunting of bighorns began in 1987 (BLM 1988). A limited number of permits to hunt bighorn sheep are issued each year through a lottery system. One other permit in addition to the permits issued by the lottery system is awarded each year to the highest bidder, allowing him/her to hunt one animal.

Torres, et al. in their 1994 paper estimated that the number of bighorn sheep in or near the preserve at between 680 and 1,075 animals or more (Torres, S. G. et al. 1994).

Chukar have been introduced throughout most of the NEMO area. Rocky Mountain mule deer were introduced in the New York Mountains of the preserve in the late 1940s (see "Exotic Species" section).

TABLE 7: NORTHEASTERN SAN BERNARDINO COUNTY BUCK KILL DATA.

Year	Number of Tags Returned	Year	Number of Tags Returned
1988	29	1992	38
1989	29	1993	43
1990	26	1994	36
1991	28	1995	33
		1996	18

TABLE 8: HUNTING STATISTICS FOR SAN BERNARDINO COUNTY

ANIMAL	1992	1993	1994	1995
Chukar	37,873	15,001	5,007	5,063
Gambel's Quail	25,187	26,314	5,984	15,813
Dove	77,799	45,459	49,461	50,463
Jackrabbit	31,455	48,070	28,089	14,103
Cottontail	25,410	27,889	14,044	7,627
Coyote	3,769	4,144	2,280	1,841
Bobcat	?	?	81	99

From State of California memorandum, May 23, 1996

TABLE 9: BIGHORN SHEEP HARVEST

Year	Old Dad Unit	Clark Mountain Unit
1987	5	Not Open
1988	5	Not Open
1989	6	Not Open
1990	4	Not Open
1991	5	Not Open
1992	5	2
1993	4	2
1994	4	0
1995	3	0

From personal communication with Vern Bleich,
Eastern Units Supervisor, CDFG

TABLE 10: BIGHORN SHEEP POPULATIONS IN OR NEAR MOJAVE NATIONAL PRESERVE

METAPOPULATION*	POPULATION	POPULATION STATUS**	POPULATION SIZE CLASS
Central Mojave	Old Dad/Kelso/Marl	N	201-300
	Granite	N	<25
	Providence	N	25-50
	Wood/Hackberry	N	51-100
	New York	N	<25
	Castle/Hart/Piute	N	<25
	Dead	N	25-50
Central North Mojave	Clark	N	101-150
	Kingston/Mesquite	N	101-150
	Nopah	N	51-100
	Soda	E	0
	Avawatz	N	25-50
	Cady++		25-50
Population Range			**680 – 1,075**

From, Torres et al. 1994,"Status of Bighorn Sheep in California, 1993, 1994 Desert Bighorn Council Transactions, pp. 17-28

* Metapopulation = Population management areas
**N = Native R = Reintroduced E = Extirpated
++ From T. Egan, pers. comm., 1997

SPECIES RESTORATION

The National Park Service's policy is to strive to restore native species to parks. See "Alternatives" section for details about restoration policies and programs. Such programs will be carried out in cooperation with other affected agencies, organizations, and individuals.

Any necessary confinement of animals in small fenced areas during restoration efforts will continue only until the animals have become thoroughly accustomed to the new area or they have become sufficiently established to minimize threats from predators, poaching, disease, or other factors (NPS 1988, 4:10 and 11).

The preserve was a former part of the range of at least one extirpated species, the pronghorn antelope (see references below). Subspecies of animal are still extant, but its pre-Columbian distributions have been drastically reduced by the direct result of human action. If at some time in the future a reintroduction of this species was planned, the above criteria would have to be met, along with public involvement and the preparation of a management plan and the necessary environmental compliance documents.

PRONGHORN ANTELOPE

The pronghorn antelope's pre-Columbian range included California's Mojave Desert (Sampson and Jespersin 1963). In June 1862 John Brown reported his hunting of antelope in the vicinity of Marl Spring, which is within the present Mojave National Preserve (King and Casebier 1981). Uncontrolled market hunting (a commercial enterprise that hunted and sold game animals for human consumption) and conflicts with agriculture are thought to have been the major factors in the species' extirpation in many parts of their former range. Farmers and sheep growers are said to have killed large numbers of antelope to conserve their crops and sheep forage. As early as 1854 the antelope hunting season was closed, but market hunters continued their depredations despite the law. Extensive agricultural development replaced much of the antelope's natural habitat. The antelope began to use cultivated crops as a replacement for their native forage.

GUZZLERS (WATER CATCHMENTS)

A guzzler is a permanent self-filling water catchment. Most are similar to a cistern and are simple, low-maintenance devices that are essentially tanks filled by rain-collecting aprons (Giles 1971). Guzzlers are installed and used to provide water for hunted species in arid areas. Nongame species such as reptiles, songbirds, and insects also use these manufactured devices. Birds enter the covered tank through an opening and walk down a ramp to the water. For bighorn sheep, piping extends from the storage tank to a drinking trough, which has a float valve to regulate the flow.

Game numbers have been increased greatly in parts of the arid West by the use of guzzlers (developed by Ben Glading, California Department of Fish and Game) (Dasmann 1964). Professor Dasmann warned that while the guzzler is functioning, animal numbers should be limited to the area's carrying capacity as "excess numbers of game can easily damage food and cover in areas near water, and in arid lands this damage is long lasting" (Dasmann 1964). This type of damage has been observed in the Mojave Desert near big game guzzlers but not in guzzlers designed for game bird use (McGill, personal communication).

A disadvantage of guzzlers is that dead tortoises are sometimes found in them and the believed cause of death is drowning (Frank Hoover, pers. comm., 1995). In an examination of guzzlers on BLM lands, one in four were found to contain large dead mammals, and one in five were found to contain dead tortoises (McGill, in preparation). McGill further observed that all guzzlers with dead animals in them were constructed of fiberglass. McGill has not observed any animal carcasses in concrete guzzlers. The U.S. Fish and Wildlife Service recommends that "If guzzlers are constructed, they should include fencing or other means to exclude tortoises" and that existing guzzlers should be retrofitted with exclusion devices (FWS 1996).

McGill recommends that fiberglass guzzlers be fitted with escape ramps, as he has observed no mortality in these types of guzzlers.

There are more than 100 artificial water impoundments in the preserve including livestock tanks and troughs, six big game and 133 game bird (gallinaceous) guzzlers. The guzzlers were developed by the California Department of Fish and Game, the Bureau of Land Management, and volunteers before the area was designated a national preserve in 1994.

FIRE MANAGEMENT

Research began in fiscal year 1998 (FY98) to examine the history of fire and its effects on the natural environment. Results from this research and other information will be used in the developing a fire management plan. Preparation of the plan is scheduled to begin in FY99.

PALEONTOLOGICAL RESOURCES

The national preserve area contains a rich and diverse, but fragile and irreplaceable paleontological record. The fossil record in the national preserve is nearly as extensive and complicated as the geological record. Much of the area's geology is exceptionally well exposed. Soil development has been greatly retarded throughout much of the area, and the outstanding exposures of geological features support an equally notable exposure of fossil remains. These organisms have value as (1) stratigraphic indicators for correlation of deposits containing them and for determination of relative geologic age, (2) records of past life forms showing the course of evolutionary trends of plants and animals, and (3) evidence of changing paleoenvironments.

A literature and records search was completed for the national preserve area by Robert E. Reynolds, Curator, Earth Sciences, San Bernardino County Museum, Redlands, California. The records and literature search identified a number of potentially sensitive fossiliferous areas in the planning area. Significant paleontological resources and records relating to paleobiostratigraphic events that occur within or near the national preserve are as follows:

- The world's oldest mitosing cells, 990 million years old, are preserved in silica in the Beck Spring Formation.
- Significant Cambrian trilobite and invertebrate fossil localities mark the boundary of the Paleozoic Era, 550 million years of age.
- The only dinosaur tracks in California and the only record of Jurassic dinosaurs in California are in the Mescal Range north of the Mojave National Preserve.
- Early records of crustal extension and breakup that occurred 24 million years ago to form basins in the Mojave Desert are found in or near the national preserve. Significant

occurrences of fossils, including rhinoceros, camel, canid, felid, bird track, and plant, are located in the Ship Mountains, Little Piute Mountains, Hackberry Mountains, Castle Mountains, Lanfair Valley, and Wild Horse Mesa in or near Mojave National Preserve.

- There are significant Plio-Pleistocene fossil localities, which are being damaged by erosion and amateur collecting, at Valley Wells and Kingston Wash.

- Cave deposits in the Mescal Range have produced significant vertebrate fossils.

CAVE RESOURCES

There are significant limestone caverns in the preserve that are found within the Providence Mountains State Recreation Area, which is operated by the California Department of Parks and Recreation. The Mitchell Caverns Natural Preserve was established in 1954 to protect and interpret two caves connected by a man made tunnel. The 97 acre-Mitchell Caverns Natural Preserve is within the larger 5,890-acre Providence Mountains State Recreation Area. The developed cave area consists of two small, but well decorated caves. A tunnel connected the two caves, known as El Pavika and Tecopa, in 1968. The caves contain areas of interesting speleothems, provide roost area for at least two species of bats (on of which is *Plecotis townsendii*), and may hold archeological material in the entrance areas.

Cave of the Winding Stair is a small but deep cave in the recreation area, open by permit to experienced vertical cavers. Several other small and unsurveyed caves exist with the local area. Very little is know about these caves and a comprehensive inventory is needed.

The Lava Beds area of Mojave is also known to contain at least one lava tube. This cave has a constructed ladder at the entrance. Other tubes may occur, but a comprehensive inventory has not been completed.

CULTURAL RESOURCES

ARCHEOLOGICAL RESOURCES

Various cultural resources studies have examined archeological resources in the Mojave National Preserve area. The most significant studies are: Davis, Brown, and Nichols, *Evaluation of Early Human Activities and Remains in the California Desert* (1980); Warren, Knack, and Warren, *A Cultural Resource Overview for the Amargosa-Mojave Basin Planning Units* (1980); Brooks, Wilson, and Brooks, *An Archaeological Inventory Report of the Owlshead/Amargosa-Mojave Basin Planning Units of the Southern California Desert Area* (1981); King and Casebier, *Background to Historic and Prehistoric Resources of the East Mojave Desert Region* (1981).

PLEISTOCENE ERA

Although evidence of human occupation during the Pleistocene Era remains a controversial subject, some researchers have suggested a pre-projectile point horizon where a crude flaking technology was used and where the ancient lakeshores may have provided a favorable environment for human occupation.

LAKE MOJAVE PERIOD, 10,000-5000 B.C.

The Lake Mojave complex, which most archeologists consider to be a Paleo-Indian assemblage, is also thought to be ancestral to the early Archaic cultures of the Pinto period. This complex has become the comparative unit for "Early Man" in the Mojave Desert, and similarities to sites in the western Great Basin and to the San Dieguito complex of southern California have been noted.

Sites of the Lake Mojave period are nearly always limited to the surface, and it is possible that two or more assemblages are represented at some of these sites. Many of the sites are associated with shoreline features of Pleistocene lakes, such as the shorelines of extinct Lakes Mojave and Manly, and near springs.

PINTO PERIOD, 5000-2000 B.C.

Dramatic environmental changes came to the Mojave Desert with the end of the Pleistocene Era, characterized by harsh climatic conditions with higher temperatures and lower precipitation. Lakes and rivers dried up, and available resources were much reduced. Human adaptation to these new environmental conditions appears to be represented by the Pinto period assemblages.

The Pinto sites are most often limited to surface manifestation or have poorly developed middens with relatively low artifact density. They appear to have been seasonal camps of small groups of highly mobile people. The small number of Pinto period sites, together with their apparent temporary occupation of hunting large and small game and collecting vegetable resources, suggests that the population was sparse and poorly adapted to the increasingly arid conditions of the desert environment. During particularly arid periods, they probably withdrew to the margins of the desert and to perennial springs and microenvironments less affected by the overall climatic deterioration, and during more moist periods they likely expanded their territory in the lower desert areas to take advantage of the shallow lakes, marshes, and springs. During the later part of the Pinto period, when the Mojave Desert was at its most arid, the population of the Mojave Desert seems to have decreased, although a mosaic of microenvironments permitted localized habitation throughout the desert.

GYPSUM PERIOD, 2000 B.C.–A.D. 500

The beginning of the Gypsum period coincided with the commencement of a more moist climatic era, often referred to as the Little Pluvial, about 2000 B.C. The Gypsum period was a time of intensive occupation of the desert coupled with a broadening of economic activities and increasing contact with the California coast and the Southwest. The bow and arrow were introduced late in this period, making hunting more efficient.

Although hunting continued to be an important economic pursuit during the Gypsum period, milling stones and handstones became common during this period, indicating increased use of plant foods and reliance on hard seeds. Mortars and pestles and manos and metates are reported at Mesquite Flat in Death Valley and on the Amargosa River, where they dated between 2080 and 3250 B.C. These sites are located near or in mesquite groves, suggesting that the processing of mesquite pods with the mortar and pestle may have become an important element in the subsistence system.

Generally, the Gypsum period was a time in which the Mojave Desert population incorporated new technological items and ritual activities and increased socioeconomic ties through trade. Because of these new means of adaptation, the return of arid conditions toward the end of the Gypsum period had relatively little effect on the Mojave Desert's population density and distribution.

SARATOGA SPRINGS PERIOD, A.D. 500–1200

In the northern Mojave, from Death Valley to the Sierra Nevada, the sites of the Saratoga Springs period appear to exhibit cultural continuity with the Gypsum period, change being most apparent in the reduction in size of projectile points as a result of the introduction of the bow and arrow. During the Saratoga Springs period, there appears to be a refinement of adaptation to the arid environment of the northwest Mojave, and presumably the beginnings of the eastward expansion across the Mojave of Numic-speaking groups, who were the ancestors of the historic Shoshone and Paiute who inhabited the region at the time of Euro-American contact.

Essentially, the same assemblage was present across the Mojave Desert north of the Mojave River. However, Basketmaker-Pueblo influences increased with Anasazi occupation of the lower Virgin and Muddy Rivers. Research suggests that the Anasazi controlled turquoise mines near Halloran Spring in the east-central Mojave between about A.D. 700 and 900, followed by Hakataya peoples, who withdrew about A.D. 1200–1300. Finally, the Southern Paiute used the area in late prehistoric times. The mining of turquoise resulted in Anasazi influence in much of the eastern Mojave, because small parties of these Virgin and Muddy River villagers used the region for intermittent and seasonal foraging. The extent of these forays has not been determined, but it appears to have been considerable, particularly in well-watered areas such as Las Vegas Valley, Ash Meadows, and the Spring Mountains. The area of this influence can be mapped by the distribution of Anasazi sherds occurring in considerable frequency at sites in southern Nevada and in California as far west as the Cronise Basin, west of Soda Lake. Anasazi influence set the eastern Mojave apart from the remainder of the desert.

During this time, the Mojave River also developed as a trade route between the Colorado River and the California coast. As a result of this trade, the ceramic and projectile point styles of the lower Colorado River spread through the Mojave River Valley, along with shell beads and ornament styles from the coastal region.

The cultural development of the Mojave Desert south of the Mojave River and Providence Mountains diverged from that in the northern area during this period. Few points of the Rose Spring series and virtually no Anasazi pottery occur in the southern Mojave. Artifact types, such as knives, drills, milling stones, mortars and pestles, stone pipes, bone awls, and shell and stone ornaments show close similarities to their counterparts in the later pottery-bearing sites along the Mojave River.

SHOSHONEAN PERIOD, 1200 A.D.–EURO-AMERICAN CONTACT

The Shoshonean period clearly anticipates the historic Native Americans with evidence of bow and arrow hunting, exploitation of plant resources using milling stones, and use of circular houses. The Anasazi influence faded after A.D. 1200 as a result of changes in climatic conditions, population movements, settlement patterns, social organization, and trade alignments.

The Mojave River Valley and the southern Mojave continued to be influenced by the well-developed trade system in which the Antelope Valley people of the western Mojave functioned as middlemen between California coastal and interior populations. Village sites on the upper Mojave developed, apparently dependent in part on the trade with the coastal region. Compared with other parts of the desert region, these villages appeared to be more elaborate; there are house pits, more abundant shell beads and ornaments, and the painting of utilitarian items such as metates with several different colors of pigment. Late in the

Shoshonean period (ca. A.D. 1650), the trade networks involving both the Mojave River and Antelope Valley peoples appear to have been disrupted, bringing an end to the villages in Antelope Valley and reducing the intensity of activity along the Mojave River.

HISTORIC ARCHEOLOGY

Historic archeological sites in the NEMO planning area are largely associated with transportation corridors, water sources, and mining operations during the late 19th and early 20th centuries.

STATUS OF ARCHEOLOGICAL RESEARCH

To date, archeological work in the national preserve has been driven primarily by compliance actions related to specific development projects, and no systematic, scientific archeological surveys have been conducted. Archeological sites in Mojave National Preserve include prehistoric villages with rock shelters, petroglyphs, and pictographs, as well as quarries and high-density lithic scatters in the Providence Mountains; petroglyphs in the Woods Mountains, Cinder Cones, and Lanfair Valley; large open sites, rock shelters, and pictographs in the Granite Mountains; numerous clusters of fire-affected rocks with associated pottery, milling assemblage, and lithic tools in the vicinity of Pleistocene lakeshores; large roasting pits associated with limestone formations in the Mescal Range and Clark Mountains; an extensive string of campsites, milling sites, and lithic scatters in the Piute Range; and campsites and petroglyphs associated with prehistoric trails connecting the Colorado River with the Pacific Coast.

LANDFORMS AND ARCHEOLOGICAL RESOURCES

While archeological sites are found on virtually every type of landform in the NEMO planning area, the persistent association of certain features with archeological sites allows for fairly reliable estimates about the types of landforms that are likely to support sites. Proximity to fresh water and food resources are the primary variables influencing Native American site location. For example, a spring in or near a mesquite grove would be an optimal location for a site. An alluvial fan generally lacks resources and would not have been a primary occupation or food collecting and processing site, but it could have been the location of food storage facilities or a temporary campsite, trail, burial site, or rock art site, all of which fall outside the parameters of a model based solely on subsistence variables.

However, previous environmental conditions must also be considered. Ancient late Pleistocene Era/early Lake Mojave Period beach features associated with now-extinct lacustrine and riparian habitat were prime occupation or food collecting and processing sites over 6,000 years ago, in spite of what the present landscape may look like.

Euro-American sites, while generally more easily identified than prehistoric sites, are generally associated with transportation networks and resource procurement/exploitation features. In the NEMO planning area, transportation routes, water sources, and mining operations are prime locations where such archeological sites may be found. The network of interconnecting roads is usually preserved and is easily discernible from aerial photographs and early maps.

NATIONAL REGISTER OF HISTORIC PLACES

Three prehistoric archeological sites or districts located in or near the national preserve are listed on the National Register of Historic Places:

Piute Pass Archeological District – August 14, 1973.
Aiken's Wash National Register District (Baker Vicinity) – May 24, 1982.
Aiken's Wash Archeological Site "J" (Baker Vicinity) – May 24, 1982.

Eleven archeological sites in or near the national preserve were determined eligible for listing on the national register on May 24, 1982:

Archeological Site, CA SBR 2759 [also known as Aiken Willows Cave]
Archeological Site, CA SBR 2760 [also known as Aiken Willows Petros I]
Archeological Site, CA SBR 2761 [also known as Aiken Willows Petros II]
Archeological Site, CA SBR 2762 [also known as Aiken Willows Petros III]
Archeological Site, CA SBR 2817 [also known as Aiken Willows Petros IV]
Archeological Site, CA SBR 2842 [also known as Aiken Willows Petros V]
Archeological Site, CA SBR 2843 [also known as Aiken Willows Petros VI]
Archeological Site, CA SBR 2844 [also known as Aiken Willows Petros VII]
Archeological Site, CA SBR 2763/H [also known as Aiken Tanks Petros]
Archeological Site, CA SBR 3150 [also known as Aiken Wash Alignment]
Archeological Site, CA SBR 7011 [also known as Aiken Cinder Mine Petros]

HISTORIC RESOURCES

Various cultural resource studies and publications have examined historic resources in Mojave National Preserve. The most significant studies and publications are Westec Services, Inc., *A History of Land Use In the California Desert Conservation* Area (1978); Warren, Knack, and Warren, *A Cultural Resource Overview for the Amargosa-Mojave Basin Planning Units* (1980); Norwood and Bull, *A Cultural Resource Overview of the Eureka, Saline, Panamint and Darwin Region, East Central California* (1980); King and Casebier, *Background to Historic and Prehistoric Resources of the East Mojave Desert Region* (1981); Vredenburgh, Shumway, and Hartill, *Desert Fever: An Overview of Mining in the California* Desert (1981).

There is an impressive inventory of historical resources in the Mojave National Preserve area. The mountains and valleys contain sites associated with early Spanish and American exploration and survey of the vast Mojave Desert region, and the area is laced with remnants of prehistoric and protohistoric Native American trails as well as Euro-American trails, wagon roads, railroads, highways, and other early transportation arteries. The region contains numerous remnants of abandoned mining operations, sites of settlements long gone and nearly forgotten, railroad grades and railway structures, and sites associated with military operations against the Native Americans. Fencelines, water tanks, and corrals testify to a continuing ranching-grazing industry; scattered remains of homesteads tell of a time when dryland farming was attempted in this arid land; and the outlines of military camps are reminders of the days during World War II when American troops trained for campaigns in other parts of the world.

EXPLORATION

The first Euro-American exploration expedition to enter the NEMO planning area was led by the Spanish priest Francisco Garces during 1775 – 76. Garces, a Franciscan stationed at San Xavier del Bac near present Tucson, Arizona, accompanied Captain Juan Bautista de Anza on the latter's second expedition to California as part of the Spanish effort to settle Alta California. After Anza's main party crossed the Colorado River near present Yuma, Garces, accompanied by Indian companions, attempted to find a new trade and communications route between the Spanish settlements in Alta California and the upper Rio Grande Valley in New Mexico by traveling up the Colorado as far as the Mojave villages, and then with Mojave Indian guides crossing the Mojave Desert on what would become known as the Mojave Indian Trail through present Mojave National Preserve, and eventually arriving at Mission San Gabriel near present Los Angeles. Later, still accompanied by Mojave guides, he returned to the Mojave villages, crossing the Mojave Desert over a more northerly route through the present national preserve.

After the Mojaves committed various depredations against the Spanish settlements, Lieutenant Gabriel Moraga led a force of about 50 men to strike the Mojave homeland. Leading his force down the Mojave River and eastward into the desert, the Moraga expedition progressed one full day's travel east of Soda Lake before being forced to turn back by desert conditions.

In 1826, Jedediah Strong Smith, credited with being the first United States citizen to reach the Mexican settlements in California overland, crossed the Mojave Desert via the Mojave villages on the Colorado River and the Mojave Indian Trail. He made a repeat trip in 1827, and during the next several years a steady flow of American "mountain men," including prominent personalities such as William Wolfskill, George C. Yount, Christopher "Kit" Carson, and Ewing Young would enter California via the Mojave villages and the Mojave Indian Trail. For the most part, these early travelers were fur trappers looking for new untapped fields.

During 1853–54, informal exploration by Francois X. Aubry, and more extensive expeditions by U.S. Army engineer Lieutenants Robert S. Williamson and Amiel W. Whipple, traversed the present Mojave National Preserve in attempts to identify the most practicable route along the 35th parallel for a transcontinental railroad across eastern California. These explorations resulted in the acquisition of significant topographic and scientific information about the 35th parallel route.

George M. Wheeler's extensive topographic and scientific surveys west of the 100th meridian for the U.S. Corps of Topographical Engineers during the 1870s earned him national recognition and made an invaluable contribution to the knowledge of the West. During his first major expedition in 1871, Wheeler's men reconnoitered some 72,250 square miles, covering portions of lower Nevada, eastern California, southwestern Utah, and northwestern, central, and southern Arizona, including the Mojave Desert. The success of this expedition enabled Wheeler to obtain congressional support for the extensive program of exploration that he would undertake throughout the rest of the decade. During 1875 his detachments again penetrated Death Valley via Darwin Canyon and Panamint Valley, and the Mojave from the south edge of Death Valley to the Colorado River. The Wheeler surveys recorded data on archeology, geology, botany, zoology, and Native Americans and developed topographic maps of the region.

During the late 1890s and early 1900s, state and federal government geologists arrived in the area that is now the Mojave National Preserve to conduct the initial scientific studies of the area's geological formations and mineralogical potential. Surveyors from the U.S. Geological Survey mapped most of the area during the early 1900s, producing the first reliable topographic maps of the region. In 1909 Walter C. Mendenhall, who would later become director of the Geological Survey, issued a guide to the "watering places" throughout the eastern California-southern Nevada desert country, providing detailed information and maps on the main routes of travel and the location and description of irrigating and artesian waters and springs in the region.

TRANSPORTATION

The lands in the Mojave National Preserve have served as an east-west transportation corridor across the eastern Mojave Desert since prehistoric times, spanning the range from Native American trails to travel by horse, mule, wagon, railroad, and automobile. Variants of the Mojave Indian Trail, used by Native Americans for centuries, were followed by explorers, mountain men, and traders beginning during the late 1820s, establishing what would become known as the Old Spanish Trail.

Because sectional conflict that would ultimately lead to Civil War prevented the construction of a transcontinental railroad until the 1860s, attention turned to developing and improving of wagon roads and postal routes to connect "the States" with the American Southwest that the United States had acquired as a result of the Mexican War. During 1857 – 60 Edward F. Beale served as superintendent of a project to survey and improve a wagon road over the 35th parallel route from Fort Defiance, New Mexico (present northeastern Arizona) to the Mojave villages on the Colorado. As part of his work, Beale's crews improved the Mojave Indian Trail through the eastern Mojave to Los Angeles. While making his wagon road improvements, Beale conducted his noted "camel experiment," using camels that had been imported by the U.S. War Department during 1855 –56. By the summer of 1858, at least five emigrant wagon trains had attempted to use the new route to travel from New Mexico to Los Angeles.

Encountering extreme hardships and attacks by the Mojave Indians at the Colorado River in August 1858, the emigrant trains were forced to return to New Mexico, halting use of the 35th parallel route as an overland transcontinental route. In response, Major William Hoffman led the "Colorado Expedition" against the Mojaves, arriving at their villages in late April 1859. The Mojaves surrendered to Hoffman's superior force, and a post known as Fort Mojave was established on the east side of Beale's Crossing of the Colorado. The post, which would remain until 1890, controlled the Mojave tribe and served as a depot for army operations in the eastern Mojave Desert in California, southern Nevada, and northwestern Arizona. Using government teams with civilian teamsters, wagonmasters, and herders, Captain Winfield Scott Hancock, U.S. Army quartermaster in Los Angeles, supplied distant Fort Mojave via Beale's wagon road, which has become generally known as the Mojave Road. The Mojave Road continued to serve as the major thoroughfare across the eastern Mojave until 1883, when a railroad was built across the desert from San Francisco via Daggett to Needles. During the 1870s immense herds of sheep and other livestock were driven over the Mojave Road to Arizona and New Mexico when new ranges were discovered that were becoming safe from Indian threats.

In 1860 Major James H. Carleton led the 1st Dragoons against the Southern Paiutes and Chemehuevis, commonly referred to as Pah-Utes, who had undertaken periodic attacks against wagon trains on the Mojave Road in the eastern Mojave in defense of their water sources, game, and traditional lifeways. During the course of his campaign, Carleton and the Indian peoples engaged in a series of running skirmishes at Old Dad Mountain, Marl Springs, the Providence and Granite mountain ranges, Kelso Dunes, and the Devil's Playground. Carlton established an army post on the Mojave River, which he named Camp Cady, as well as a short-lived adobe redoubt at Soda Springs. Isolated depredations against wagon trains persisted after 1860, and when the Arizona Overland Mail used the Mojave Road as a postal route during 1866–68, the U.S. Army established relay posts across the desert at Soda Springs, Marl Springs, Rock Spring, and Piute Creek to provide escort riders for the mail carriers. Military authorities at Fort Mojave made peace with the Pah-Utes in 1867, and by 1870 the Indians had ceased to be a factor of concern to the growing numbers of Euro-Americans who were entering the region to establish mines and ranches.

During the early 1880s, the Atlantic and Pacific Railroad, owned in part by the Atchison, Topeka and Santa Fe, began construction along the 35th parallel route from the east. The Southern Pacific (closely linked with the Central Pacific and led by Collis P. Huntington, one of California's major railroad magnates) began construction of a rail line southward from San Francisco to meet the Atlantic and Pacific at Needles. By April 1883 the Southern Pacific Line was completed across the eastern Mojave from Mojave to Needles, and in May the Atlantic and Pacific reached the opposite bank of the Colorado. After a settlement between the two railroads, the Colorado River was bridged, and on August 9, 1883, the 35th parallel rail line was connected, thus opening a transcontinental route between California and Springfield, Missouri. This rail line, now owned by the Burlington Northern Santa Fe Corporation, would stimulate the economic and mining development of the eastern Mojave.

The Nevada Southern Railroad completed a line from Goffs to the mining settlement of Manvel in the New York Mountains by the summer of 1893. Reorganized as the California Eastern Railroad Company in 1895, the rail line was extended to the Ivanpah Valley in 1901–02. The Santa Fe took over the railway in 1902, and, during 1906–07, a branch line was constructed from Barnwell (formerly Manvel) to Searchlight, Nevada. That branch operated until 1923.

The San Pedro, Los Angeles, and Salt Lake Railroad, jointly owned by copper king William A. Clark (who established the company in 1901) and Edward H. Harriman of the Union Pacific Railroad (who had subsequently purchased one-half of the company's stock) constructed its tracks through the present Mojave National Preserve in 1905, thus filling the last significant gap in transcontinental railroad lines from Salt Lake City to Los Angeles. Later, this "Salt Lake Route" to southern California, officially renamed the Los Angeles and Salt Lake Railroad, would be fully controlled by the Union Pacific, and the company would construct the extant mission revival style Kelso Depot in 1924 to serve as a hotel, restaurant, and office for train crews that provided 24-hour essential helper (engine) service 19 miles eastward from Kelso to the top of Cima Hill. Cima emerged as a small railroad community, featuring a wye on which the helper locomotives from Kelso could be turned to return to Kelso.

During the early 1900s, Francis M. "Borax" Smith attempted to tap his Amargosa Valley borax properties near Death Valley with a traction road consisting of a rock-based wagon road from his newly developed Lila C. Mine to the California Eastern railhead at Ivanpah II (there were three settlements with the name of Ivanpah). In April 1904 a traction engine left Ivanpah on the inaugural trip, but it completed only 14 miles before bogging down. Smith then determined to build the Tonopah and Tidewater Railroad, extending northward from Ludlow through the Mojave National Preserve area to Beatty, Nevada. Operating from 1907 to 1940, the railroad, along with its feeder lines, tapped the growing mining settlements in the present day Mojave National Preserve area.

With the emergence of the automobile age, efforts were initiated to develop a highway system across the United States. The Mojave Road served as the antecedent for the eastern Mojave portion of the "Ocean-to-Ocean Highway," sometimes referred to as the "National Old Trails Highway," which was constructed in 1914 between San Bernardino and Needles. Eventually this highway would become known as Route 66, a transcontinental road connecting Chicago with Los Angeles. The highway, which skirted the southern edge of the Mojave National Preserve area, was paved during the 1930s with funds and manpower provided by Depression-era public works agencies. Route 66 became a significant transportation artery during the Depression for people who wanted to leave the Dust Bowl to make a new start in California. During the early 1970s Route 66 was replaced by Interstate 40, and today the historic route, known as the National Old Trails Highway (determined eligible for listing on the national register as an archeological district on April 26, 1993), serves as a nostalgic reminder of early automobile transcontinental travel.

The Arrowhead Trail, originally marked from San Bernardino via Las Vegas to Salt Lake City during 1914 – 16 and realigned as U.S. 91 during the late 1920s, was replaced by present-day Interstate Highway 15 during the 1960s. The highway skirts the north edge of the national preserve.

MINING

Gold and silver discoveries in the Colorado River Basin during the late 1850s and early 1860s sent hundreds of prospectors trekking across the eastern Mojave. As a result, prospectors discovered silver near Rock Spring in the present Mojave National Preserve, and the Rock Spring (or Macedonian) Mining District was established in 1863. Silver deposits were soon discovered south of the Mojave Road in the Providence Mountains. For the next several years, mining camps proliferated in the Providence Mountains/Mid Hills/New York Mountains region, but the principal settlement was at Rock Spring, where the first post office in the present national preserve was established in 1866.

Although the mines in the Providence, Coso, and Slate ranges were vacated during the late 1860s because of trouble with Native Americans who sought to protect their traditional lands against the influx of Euro-American miners, the threat of Indian attack was removed by 1870, and prospectors began heading back to the abandoned portions of the desert. The Copper World was discovered near Valley Wells southwest of Clark Mountain about 1868, and silver was discovered south of Clark Mountain in 1869, resulting in establishment of the first site of Ivanpah, where much of the mining history of the eastern Mojave would be centered during the 1870s. Silver continued to be mined in the Macedonia District in 1872 and in the New York Mountains during 1873.

The prosperous national economy after the Civil War stimulated mining ventures in the California desert region, but the bank panic in 1873 and subsequent depression curtailed speculative capital for mining. The coming of the railroads during the 1880s stimulated new mining ventures in the eastern Mojave, particularly in San Bernardino County. Ivanpah, worked since 1870 for silver, was developed by two companies in 1880 – 81. Two prospectors from Ivanpah discovered the rich Bonanza King silver mine on the eastern slopes of the Providence Mountains, resulting in establishment of Providence, which flourished during 1883 – 85, and Crow Town. The Cambria Mine at Nantan was active during 1885 – 86.

Gold mining dominated mining ventures in the eastern California desert region during the 1890s, the Panic of 1893 resulting in political decisions favorable to gold interests over those of silver ventures. During this time, the widespread use of cyanide for treating gold ore sent many prospectors out to rework old dumps, and formerly unprofitable mines were reopened. These developments led to discovery and development of the Gold Bronze and Boomerang mines in the New York Mountains, the Telegraph Mine near Halloran Springs, and the

Paymaster (Whitney) Mine near Old Dad Mountain southeast of Baker. The rise in copper prices during the 1890s resulted in reopening the Copper World Mine in 1898. Other mining ventures included development of copper, lead, and silver deposits in the New York Mountains, where the town of Vanderbilt was established, its name being chosen to signify the great wealth that the mines were believed to possess. The rich gold mine of Bagdad Chase, southeast of Ludlow and several miles outside the national preserve, was discovered about 1898, and during 1904 – 52 this mine would produce more than $6,000,000, or more than half of the recorded gold mined in the San Bernardino County since 1880.

Not until the early 1900s did conditions become conducive to large-scale hardrock mining operations in the eastern California desert region, prompted in part by the improvement of transportation facilities and by a renewal of interest in gold and silver. The significant discovery at Goldfield, Nevada, in 1903 led to a stampede early the following year. During the fall of 1904, the mining rush extended southward to Rhyolite and soon spilled over into Inyo and San Bernardino counties in eastern California. A variety of metallic minerals were exploited in the national preserve area during the 1900s, including gold (Castle Mountains, and Old Dad Mountain; copper (Vontrigger Hills, Clark Mountain); lead, zinc and silver (Mid Hills, [especially the Death Valley Mine], Mountain Pass). This activity resulted in the formation of boomtowns whose progress paralleled for a time the maturation of Goldfield, Tonopah, and Rhyolite in Nevada. Ephemeral mining camps, such Vontrigger Camp, Goldbend, Gold Valley, Gold Park, Dawson, Kewanee, and Hart, sprang up throughout the desert region. These mining ventures flourished until the financial panic of 1907, which resulted in an immediate slowdown of work and often total cessation of mining activity.

Although the inflationary 1920s put a damper on new mineral discoveries and mining development in the California desert, some mining activity continued. Since the early 1920s, clay used for ceramic purposes has been mined in the Castle Mountains. During 1924 – 25, gold was discovered north of Goffs on the south slope of Hackberry Mountain, and a new Vontrigger camp emerged.

The 1930s witnessed a revival of gold mining in the desert. Although the major discoveries occurred in Kern County, older districts, such as the Vanderbilt, experienced revivals. Prospecting was conducted where gold was known to have occurred, and some new discoveries were made as a result of this heightened interest.

The United States recovered from the Depression largely as a result of the worldwide demand for industrial and military-related products with the onset of World War II. Factories were placed in full production to turn out war materials, and the government paid premium prices for minerals such as tungsten, antimony, manganese, iron, copper, lead, and zinc necessary for military industrial production. Mines producing these ores, such as the Kaiser Steel Company's Vulcan Mine northwest of Foshay Pass in the Providence Mountains, which provided more than 2,000,000 tons of iron ore during 1942 – 48 to supply its new steel mill at Fontana, prospered during the war. Concerned that more than 20,000 men were employed at 250 gold mines and 700 placer mines throughout the western United States, the War Production Board issued Limitation Order L-208 on October 8, 1942, classifying gold mines (lode mines producing less than 1,200 tons in 1941 were exempt) as nonessential for the war effort and giving mine owners 60 days to cease operations.

Uranium fever, much like the gold fever of earlier days, swept the eastern Mojave during the mid-1950s. Tungsten prospecting revived after World War II, and a major talc industry that had begun during World War I (but had never thrived because of limited markets and remoteness of the deposits) revived. Talc has also been mined in the Kingston Mountain region, and cinders have been quarried from the Cinder Cones and Lava Beds (Aiken Mine) areas southeast of Baker. Rare earth minerals have been mined on a large scale in the Mountain Pass area southeast of Clark Mountain. Periodic gold excitement has resulted in reactivation of gold mining operations in the eastern Mojave, including the Vanderbilt Mine in 1968 and the Bagdad-Chase Mine south of Ludlow during the early 1970s.

RANCHING/HOMESTEADING

Throughout the eastern California desert region, little oases with rich pockets of ground could become for a time more profitable bonanzas than most of the surrounding mineral lands. These isolated patches of fertile soil and perennial springs could produce crops of vegetables, fruit, and hay or fatten a herd of beef cattle, providing quick fortunes for the homesteader or rancher as long as the neighboring mining camps boomed. Although most ranchers held 160-acre homestead claims, they were usually able to irrigate only a fraction of that, while their stock ranged free for miles beyond. The proximity of ranches and mining camps determined the profitability of both, but ultimately it was the size of the ore pocket that limited the size of the salable crop, so as the mines went from boom to bust, so did the ranches.

The natural fecundity of watered land in the NEMO planning area had long been demonstrated by Native Americans, who raised crops of corn, beans, melons, and squash around some of the springs and seeps.

Miners who established the Rock Spring Mining District in 1863 probably were likely the first to maintain cattle and horses for extended periods in the east Mojave. Military garrisons and mining settlements in the region would continue to provide a market for fresh milk, meat, vegetables, and fruits.

The Rock Springs Land and Cattle Company (RSLCC) was incorporated in 1894, consolidating the earliest ranches in and near the present Mojave National Preserve (the Kessler Springs Ranch was the first, dating from the 1870s), and during subsequent years it extended its cattle operations over much of the eastern Mojave and into southern Nevada. The company, headquartered in the present national preserve, spent large sums to establish claims for exclusive use and improvement of the area's water sources. By 1920 the ranch would have nearly 10,000 head of cattle on its more than 1,000,000-acres. The ranch remained the dominant force in the cattle industry in the east Mojave until 1927, when one of its corporate members died and the company interests were subdivided. From 1927 until 1988, the OX Cattle Company, headquartered in Lanfair Valley and a direct descendent of the RSLCC, was the largest ranch in the east Mojave, operating over only a fraction of the area controlled by its predecessor, while other parts of the former range were operated as smaller ranches such as the Gold Valley, Overson, Kessler Springs, Valley View, and Blair ranches.

Beginning about 1910, settlers established homesteads and attempted dryland farming in the east Mojave, taking advantage of a cycle of particularly wet years. Although homesteads were established in many places, including Barnwell, Crucero, Goffs, and Pinto Valley, the majority (some 200–250 patents) were centered in Lanfair Valley, named for Ernest L. Lanfair, a merchant from Searchlight, Nevada, who filed the valley's first claim. After marginal success in drilling wells in Lanfair Valley, the settlers were forced to haul water over the Mojave Road from Government Holes, the one remaining water source in public ownership. By the late 1910s, dry years had returned, and many homesteaders had left the area. After the abandonment of the railroad between Barnwell and Searchlight in 1923, most of the remaining settlers moved out.

Dunbar was a black settlement established in 1911, 1 mile north of the Lanfair townsite in Lanfair Valley by G. W. Harts and Howard Folke, and at its peak the community numbered approximately 20 households. Harts tried an experiment in cotton cultivation, and Dr. C. H. Duvall planned construction of a home and industrial school for orphans on 40 acres of donated land, but the settlement was short-lived, its post office closing in May 1914.

Many homes stood empty in the east Mojave at the beginning of the Depression. Driven by the economic downturn, people moved into some abandoned sites and managed to eke out a living, some trying to mine gold on an almost primitive scale. These proud people, unwilling to face the urban soup lines, quietly wrote a chapter in the history of the eastern California desert.

COMMUNICATION

The first transcontinental telephone line, in operation from New York to San Francisco by 1915, crossed the present national preserve, but traces of the line have disappeared. Examples of significant communication lines in the national preserve area include the first powerline constructed from Hoover Dam to the Los Angeles area during the 1930s and an early telephone line that parallels the Santa Fe Railroad.

During the 1960s the American Telephone and Telegraph Corporation (AT&T) constructed an underground communications cable network throughout the United States. In the early 1980s the system was upgraded to accommodate current technological advances using Phillips technology; hence, it was renamed the P140 coaxial cable system. At the present time, AT&T, which owns and operates approximately 709 miles of the system between Mojave, California, and Socorro, New Mexico, is proposing to remove communications cable, marker posts, manholes, and repeater stations (incompatible with the company's current fiber optic network) from a 220-mile right-of-way that includes national preserve lands.

FEDERAL ADMINISTRATION

Until the 1930s the public lands in the national preserve area were administered by the General Land Office (GLO), established in 1812 as a bureau in the U.S. Treasury Department and later transferred to the Department of the Interior in 1849. In 1934 the Taylor Grazing Act provided for the segregation of up to 8,000,000 acres (later raised to 142,000,000 acres) for grazing purposes under the jurisdiction of the newly established Grazing Service (GS) in the Interior Department. The Bureau of Land Management was established in 1946, uniting the functions of the former GLO and GS. The bureau was given responsibility for administrating and managing all public lands in the United States and Alaska, including its surface and subsurface resources.

MODERN MILITARY TRAINING

General George S. Patton selected much of the eastern Mojave and part of the Colorado Desert to train his troops for the North Africa campaigns during World War II. Although Patton left with his troops for North Africa in 1942 after less than a year's training, more than 1,000,000 men destined for many of the war's major battlefields were processed through the Desert Training Center, or the California-Arizona Maneuver Area (C-AMA) as it became known after its area was expanded to include lands east of the Colorado River. Headquartered at Camp Young near Indio, California, the C-AMA focused largely on lands south of the national preserve area. However, an important campsite was established in the southern portion of Piute Valley north of Arrowhead Junction at Camp Ibis (just east of the present national preserve), and a division-level encampment, known as Camp Clipper (also known as Camp Essex), was established at Goffs in June 1942 for 16,000 troops, including a segregated black division. Portions of Camp Clipper, which operated until June 1944, are in the national preserve, and the Clipper Mountains and Piute Valley on both sides of the California-Nevada border served as operating areas for the military training exercises.

Operation "Desert Strike," one of the largest exercises ever conducted by the U.S. Strike Command, involved more than 100,000 active and reserve men from all branches of the armed forces during training exercises between May 17 and 31, 1964. This multitude of men, along with a proportionate quantity of machines, guns, aircraft, and supplies, swarmed across the present national preserve from east to west, slashing hundreds of miles of new roads indiscriminately through the desert and leaving hundreds of tons of supplies and debris scattered throughout the area.

Today, nearly one-sixth of the Mojave Desert lies within military bases and reservations. Two of the military bases that are closest to the national preserve area are the Fort Irwin National Training Center and the Marine Corps Air Ground Combat Center.

RECREATIONAL DEVELOPMENT/TOURISM

Recognition of the recreational and park values of the California desert was first undertaken during the pre-World War I years by such organizations as the Automobile Club of Southern California and the International Desert Protective Association, both of which encouraged their members to tour the desert and helped them do so with maps, sign programs, and lobbying campaigns for better roads. Since that time, the eastern California desert region has attracted an ever-increasing number of tourists interested in taking advantage of its recreational opportunities, including hunting, trapping, rockhounding, hiking, camping, and sightseeing.

During the 1870s, a public bathing establishment was built at Soda Springs, known as Soda Lake Station when it was a stage stop. In 1914 a religious group led by Pastor Charles T. Russell occupied Soda Springs, constructing five frame houses and attempting to mine gold in the nearby hills. In 1944 Curtis H. Springer arrived at Soda Springs and, finding it deserted, took possession of the land under a mining claim. He and his wife, Helen, developed the property into the "Zzyzx Mineral Springs and Health Resort," which operated until 1974. With the exception of several modern structures, the site is much as the Springers left it. Transferred from the Bureau of Land Management to the National Park Service in 1994, the site is leased to the California Desert Studies Consortium of the California State University.

Mitchell Caverns, developed as a tourist attraction during the 1930s by Jack and Ida Mitchell, became a California state park during the mid-1950s. Today, the state of California administers the caverns and surrounding area as the Providence Mountains State Recreation Area.

CULTURAL LANDSCAPES

Many cultural landscapes exist in the Mojave National Preserve that are potentially eligible for listing on the National Register of Historic Places, but cultural landscape studies have not been undertaken to identify their character-defining elements. Landscapes reflecting mining, ranching, railroading, and ethnographic activities can be seen throughout the preserve.

NATIONAL REGISTER OF HISTORIC PLACES

The historic Boulder Transmission Lines 1, 2, and 3 Archeological District (CA-SBR-7694H), located both in the national preserve and on adjacent BLM lands, was determined eligible for listing on the national register as an archeological (historic) district on February 16, 1994.

A national register nomination form has been prepared for the Kelso Depot.

National register nomination forms are being prepared for Soda Springs Historic District and Mojave Road.

The following ten historic sites in or near the national preserve have been designated California Historic Landmarks or California points of historic interest:

Fort Piute
Lanfair
Camp Rock Spring
Barnwell
Nantan
Marl Springs
Zzyzx Springs
Kelso Depot
Fenner
Vanderbilt.

MUSEUM COLLECTIONS

There are no existing collections maintained by the Preserve, but the National Park Service could anticipate acquisition of archeological artifact collections and historical collections relating to mining, ranching/homesteading, modern military exercises, and recreational development/tourism (for example) Soda Springs.

RELATIONSHIPS OF NATIVE AMERICAN CULTURES TO NEMO LANDS

For millennia, American Indian peoples lived within the planning area, using the resources and lands to sustain their lives and cultures. These lands have been and continue to be subject to active, often dramatic, and ever-changing natural forces that can alter water supplies, change vegetation zones, make new landforms from tectonic or volcanic events, and include cutting or filling geological processes. Climatic changes that have occurred since the end of the Ice Age have altered moisture in lakes and marshes, affected animal populations and plant life, and challenged humans to adapt. This area is characterized by a series of parallel, northward-draining trough-like valleys between north-south oriented mountain systems that form rain shadows, resulting in more evaporation than precipitation and general aridity. The basic necessities for human life of American Indian peoples are present – water and food, materials for tools, access to routes for traveling, special places for spiritual rites that continue today, and a sense of land association and place identity. These peoples' presence has resulted in a tangible heritage of cultural materials, remembered place names and associations, and attachments to the land from history to modern times.

Nonnative people describe lands as typical of the Great Basin geomorphological zone and of the Sonoran-Mojave Deserts in biological terms. From valley floors to mountain peaks, a series of environmental zones is described from lower elevation scrub plant communities, through Joshua Tree and pinyon-juniper woodlands, to higher elevations of mixed pine and pinyon woodlands. The valleys often contain dry lakes or playas. Transitional foothill zones are cut by drainage systems, forming seeps, springs, and active seasonal streams. To American Indian peoples now known as Mojave, Shoshone, Paiute, Serrano, Chemehuevi, and Kawaiisu, the lands were occupied and used in many ways, with flexible boundaries among these tribal groups. These peoples are differentiated by language, varied subsistence patterns, and self-identification. Specific historic geographical associations to NEMO lands and places are known from compilations of information used in Federal Indian Land Claims court cases during the 1950s and 1960s.

In general, tribal peoples historically occupied their lands in small, mobile social units of related families who traveled in regular patterns, establishing summer or winter camps in customary places with water supplies, often located at a border between scrub or woodland zones. Some localities contained richer and more dependable food resources than others, but the lands did not support large numbers of persons at any one location. Many plants yielded seed, nut, tuber, or fiber foods, prepared for consumption or for storage at convenient caches. Large or small land mammals were hunted or caught, birds such as doves or quail were snared, and reptiles were collected, but not all plants or fauna were sought. The diet for these native peoples was largely vegetarian, supplemented by mammals, reptiles, and insect sources. Certain places on the lands were and are today considered specially significant; for example, landforms named in oral accounts of travels by supernatural beings, "hot" springs that have curative purposes, petroglyph sites believed to be the products of the shamans' supernatural helpers, or topographic landmarks identified in complex chants known today as "bird songs." In essence, "oral maps" of NEMO lands still exist today in ceremonial knowledge held by certain Mohave and Chemehuevi individuals. Other tribal members have documented descriptive names in Shoshone language for places of settlement, gathering camps, and other important locations in the study area.

In the past two centuries American Indian peoples inhabiting the NEMO area have changed their territorial ranges in reaction to European and later American direct and indirect pressures, as well as intertribal struggles. U.S. military presence increased at Camp Cady, east of Mojave National Preserve, at established posts in the Owens Valley and at Fort Mohave along the Colorado River in response to increasing American settlers, miners, and ranchers. This resulted in establishment of more concentrated reservations and communities by the early 20th century. Earlier movements were caused by groups of families moving toward growing towns, shifting populations from more traditional scattered patterns. For example, from the southern Nevada portion of Southern Paiute-held areas, people now known as Chemehuevi had moved toward the Colorado River valley early in the 19th century. Kawaiisu, Koso (also known as Panamint Shoshone) and Serrano peoples were jointly using terrain around the Granite and Providence Mountain ranges during the 19th century.

In the l950 –1960s, Federal Indian Lands Claims cases involving Chemehuevi, Mojave, and Owens Valley Paiute tribes included documented occupation and use of many mountain ranges, valleys, and resources in the study area. Maps illustrating Chemehuevi use of the lands now in Mojave National Preserve were accepted by Mojave tribal officials as well. Individual members of the Mojave Tribe have family historical information on early 20th century land uses in or near national preserve lands. Today's tribal governments and communities historically associated with the study area are as follows:

- The Chemehuevi Indian Tribe Reservation was established by Presidential Executive Order in 1971 (30,600 acres). Federal recognition occurred in 1970. Economic support comes from land leases, retail businesses, tourism and recreation services, and gaming. Tribal enrollment is about 500 persons, 300 of whom reside on or near the Havasu Lake, California, developed area.

- Mohave Indian Tribe Reservation lands are in Arizona, California, and Nevada, but tribal offices and some residential areas are in Needles, California. In 1864 a reservation was established from a former military fort reserve and nearby traditional lands. Economic developments relating to gaming, tourism, recreation, and retail business with considerable agricultural land leases provide tribal and individual incomes. The tribe population is about 1,000, with about 500 people living on or near reservation lands.

- The Las Vegas Piute Tribe is composed of "Nuwuvi" people, called Paiute by others, who inhabited present-day southern Nevada from pre-European time to present. In 1911 a small parcel of trust land was established near the town of Las Vegas. Today, the tribe owns the original 16-acre area and a 3,800-acre area north of metropolitan Las Vegas. The tribe numbers about 100 people who gain their economic support from tribal tourism enterprises, retail sales, and wage work.

- In San Bernardino County, the San Manuel Tribal Community is composed of historic Serrano peoples who occupied the mountainous areas in today's Riverside and San Bernardino counties, with their related neighbors, the various Cahuilla communities. The 660-acre reservation was established by Congress in 1893. The tribe is about 85 individuals residing on or near trust lands. Enterprises include a casino and a curation facility.

VISITOR USE, SERVICES, AND FACILITIES

Mojave National Preserve has long provided recreational opportunities for people from all over the world. Its nearness to major population centers such as Los Angeles and Las Vegas, combined with major interstate highways, gives residents the opportunity for relatively easy access to many parts of the desert. Most of the landscape is open, with broad vistas of relatively undeveloped land. The vastness of the landscape offers visitors an opportunity for seclusion and a sense of wilderness, even while in a vehicle. Early miners and ranchers developed roads that today offer visitors a chance to drive into many remote locations where informal camping has traditionally occurred. There are several major sand dune systems. Hikers play on and explore the Kelso Dunes. There are many cultural sites such as abandoned mining districts, which many people love to visit. The mountain ranges, such as the New York and Providence Mountains, offer a contrast to the dry hot valleys, attracting many people in summer with cooler temperatures and forested areas. Volcanic cinder cones, lava flows, exposed geology, and unique wildlife and vegetation are other elements that attract people. The land has many extremes and contrasts that people come to experience, such as the high summer temperatures. Most visitors come to the desert simply to see the outstanding scenery of this diverse landscape.

VISITATION

TABLE 11: ANNUAL VISITATION FOR REGIONAL RECREATION AREAS

	1985	**1990**	**1995**	**1997**
Death Valley NP	576,400	691,000	1,109,400	1,222,762
Joshua Tree NP	641, 200	1,022,400	1,235,700	1,242,773
	1985	**1993**	***May 1996 - Apr 1997**	**1997**
Mojave NP	60,000 (est.)	250,000 (est.)	339,700	378,977

* Mojave NP traffic counters began operating in May 1996.

Most visitation to the preserve occurs between October and May. It is estimated that 72% of overnight visitation occurs this time. In July 1996, 12,842 vehicles entered the preserve, compared to 14,617 in March 1997. While the numbers are very close, relatively few people stay more than a few hours in the summer. Campground use statistics show a different picture of summer visitation. During July 1996 there were 35-user days, and during March 1997, there were 1,412. These numbers reflect use of all developed campgrounds. The 1997 visitor study revealed that 64% of the visitors were from California and 11% were from Nevada. Most people started from Las Vegas, Nevada or from Twentynine Palms or Barstow, California on the day of their visit to the preserve. There may also be a large number of visitors who are taking a scenic route between Joshua Tree National Park and Death Valley. The most concentrated use periods are the first two or three weekends of the upland bird and deer seasons in October and November, and the Thanksgiving and Easter weekends. April had the highest visitation record of any month during 1996. Campground use has increased over the years; the Bureau of Land Management recorded 960 user-days during April 1991; while the National Park Service recorded 1,252 in 1996 and 1,500 in 1997. These numbers may reflect having campground hosts and different BLM and NPS collection processes.

Many residents of adjacent communities such as Needles, Laughlin and Bullhead City come to the higher elevations in the preserve during the summer to escape the heat and enjoy a change of scenery. Most visitation to the preserve occurs on weekends when residents of California, Arizona and Nevada arrive. Day time recreational use is expected to continue to increase as the populations of Clark County and Laughlin, Nevada, Bullhead City and Kingman, Arizona, Barstow and Needles, California continue to grow.

Traffic counters and field observations indicate that many people are using roads in the preserve as a route between Las Vegas and Twentynine Palms. Most use in the preserve is sightseeing and driving for recreation, but the diverse landscape offers many other forms of recreation including activities such as hunting, nature study, rock-climbing, mountain biking, exploring by 4WD vehicle, and hiking.

OUTDOOR RECREATION

Many opportunities for day hiking exist. There are two developed trails: one between Mid Hills and Hole-in-the-Wall campgrounds, and the second a two-mile roundtrip to Teutonia Peak from Cima Road. There are other hiking opportunities—an abandoned road in Caruthers Canyon leads to an old gold mine, Kelso Dunes, and a trail in Piute Canyon leads along sections of the original Mojave Road and into the wash and eventually ends at Piute Gorge. Several former roads now in wilderness areas are closed to vehicle use; such roads may offer opportunities for hiking into Cow Cove, Castle Peaks, and other areas.

The large network of dirt roads leads many visitors to explore the preserve by 4-wheel drive or other high-clearance vehicles. This road network provides opportunities for dispersed camping; Mid Hills and Hole-in-the-Wall campgrounds offer camping in developed areas. Deer hunting brings many people in the fall who also participate in dispersed camping, changing places of solitude into informal campgrounds. Driving the historic Mojave Road is a very popular activity and has even attracted international visitors. An estimated 2,000–3,000 vehicles a year travel this 4WD route to enjoy the scenery and visit the historic sites noted in the *Mojave Road Guide*. The use of the Mojave Road is expected to continue to increase in coming years.

Horseback riding occurs in the preserve at several locations. A group called the East Mojave Scenic Area Trail Riders has defined routes out of the Hole-in-the-Wall Corral that lead into Round, Pinto, Gold and Lanfair Valleys. Watson and Woods washes also serve as routes to Caruthers and Black Canyons. Trails often follow old roads or washes or go cross-country. These routes are not marked by signs, so the experience of using them is an informal "adventure." The amount of use is unknown.

The Bureau of Land Management contracted for a visitor survey of the East Mojave Scenic Area (now the Mojave National Preserve). The report of the survey, completed in 1990, indicates that visitors participated in the following activities:

TABLE 12: BLM VISITOR ACTIVITIES IN EAST MOJAVE (PRE-CDPA)

Visitor Activities (1990 - BLM Visitor Survey)	Participation Levels
Auto-touring/sightseeing	43%
Nature study/hiking	19%
Off-road vehicle use	14%
Camping in developed campgrounds	14%
Dispersed camping	10%
Hunting*	Not available

* Hunting was not included in the initial survey but is a significant visitor activity during the Fall upland bird and deer hunts.

TABLE 13: BLM VISITOR PROFILE FOR EAST MOJAVE

Visitor Profile (1990 BLM Visitor Survey)	Percentage/Age
First-time visitors	43%
Repeat visitors	57%
Traveled 100–200 miles to get to the preserve	35%
Traveled 210–500 miles to get to the preserve	40%
Came to view the scenery	72%
Average age	25-40 years
California residents	81.5%
Stayed 13–24 hours during visit	17.5%
Stayed 3–7 days during visit	25.5%
Stayed 1–2 days during visit	44%
Said the preserve was not their primary destination	11.2%
Said the preserve was their primary destination	84.1%

TABLE 14: MOJAVE NATIONAL PRESERVE VISITOR ACTIVITIES

Visitor Activities (1997 NPS Visitor Study)	Participation levels
Auto-touring/sightseeing	61%
Nature study/hiking	49%
Off road vehicle use	51%
Camping in developed campgrounds	22%
Day hike	41%
Visit ruins/historic sites	32%
Driving through only	28%
Dispersed camping	15%
Hunting*	Not available

* Hunting was not included in the initial survey but is a significant visitor activity during the Fall upland bird and deer hunts.

TABLE 15: MOJAVE NATIONAL PRESERVE VISITOR PROFILE

Visitor Profile (1997 NPS Visitor Study)	Percentage/Age
First time visitors	46%
Repeat visitors	54%
International visitors	7%
Visitors from California	69%
Visitors from Nevada	12%
Average age	36-55 years
Stayed less than 1 day	61%
Stayed 3–4 days	29%
Stayed 7 or more days	4%
Of those who stayed less than a day, (stayed only 1 hour)	10%
Of those who stayed less than a day, (stayed 2–4 hours)	52%
Visited Kelso Depot	66%
Visited Kelso Dunes	57%
Visited Hole-in-the-Wall campground	35%
Visited Mid Hills campground	25%
Visited Mitchell Caverns	22%
Traveled on Wildhorse Canyon road	19%
Traveled on Mojave Road	16%
Visited Caruthers Canyon	8%
Visited Zzyzx	4%

VISITOR INFORMATION CENTERS

The National Park Service uses commercial space adjacent to the Bun Boy Restaurant in Baker, California as a visitor information center. The Death Valley Natural History Association and Mojave National Preserve share support and material costs. Information is available about recreational activities in Death Valley National Park, Mojave National Preserve, and surrounding Bureau of Land Management recreation sites such as Dumont Dunes.

The preserve also operates a visitor contact center at Hole-in-the-Wall in a building constructed by the Bureau of Land Management. A small amphitheater and a picnic area are also available. This visitor contact center serves as a point for people camping in or visiting the area and provides overnight, short-term housing for one NPS staff member. Hole-in-the-Wall is staffed seasonally as public demand exists and staffing levels allow for someone to work here. Electricity is provided by a propane generator, but a solar electric system is being planned.

The preserve leases office space in Needles, California, for a visitor information center. This facility is staffed by an NPS interpreter who provides interpretive and recreational information. Lake Mead National Recreation Area also supports the Needles information center with staff and in other ways.

KELSO DEPOT

Construction of the depot was completed sometime between 1923 and 1924, after which rooms and a cafe served railroad workers for approximately 38 years as a railroad hotel, restaurant, and club for workers laying over between shifts. The café continued to operate until June 1985, when it was closed. The building remains an excellent and rare example of a mid-1920s Mission Revival style railroad station and employee housing of the Union Pacific railroad in California.

The depot stands as a remnant of the steam-powered locomotive era, when pusher engines were used to help trains get up over the steep Cima grade. The historical setting for the building continues with a minor amount of intrusions from modern structures within the area. The building has been nominated for the National Register of Historic Places. The National Park Service also completed a historic structure report in 1997 that records the historic details of structure and made recommendations for stabilization and renovation. This document provides extensive documentation on the depot.

The depot is located at the preserve's most used crossroad, where the 1997 average was 172 cars per day. Weekend traffic levels are estimated as being much higher but exact figures are not available. Train traffic on the Union Pacific tracks is also very active, causing frequent delays on the Kelbaker Road of 15 to 30 minutes and sometimes up to 1 hour. This is because the road crossing is in the middle of the railroad siding. Trains must be separated into two parts at the road when they stop, necessitating a lengthy process to set individual brakes on each car. The trains are an attraction to visitors, but they also pose a threat to their safety. The site has easy access to electrical power but telephone lines are limited at this time. Water would be available through an agreement with the Union Pacific or by drilling a well. Solutions to telephone and water problems can be found. A sewer system would need to be constructed for the depot.

The depot is within a 100-year floodplain, according to a BLM study prepared in 1990. Errors have been found in the application of the study method, and the National Park Service is now conducting a floodplain study to determine the potential threat of flooding to the building. At this time the National Park Service believes that the need to protect, stabilize, and renovate the depot into a visitor center outweighs the potential threat of flooding. Mitigating measures such as armoring the dike north of the depot, rerouting the Kelbaker Road so as to fill in the gap in the dike that the road creates, or establishing an advanced warning system could reasonably address concerns for the protection of human life and government property.

CAMPGROUNDS

Mojave National Preserve has two developed campgrounds, Hole-in-the-Wall and Mid Hills. There is no fee to enter Mojave National Preserve, but a fee is charged at Hole-in-the-Wall and Mid Hills campgrounds for the use of an individual or group campground.

Hole-in-the-Wall contains 35 campsites, new restrooms, an RV dump station and a campground host site. It is in very good condition. All campsites are accessible to visitors with disabilities and are designed for access by large recreational vehicles. The water system is being redesigned to provide better service. There is also a group camping facility with a corral at Hole-in-the-Wall.

The Mid Hills campground contains 26 campsites. It was not designed for larger vehicles, but serves tent campers and those with small recreational vehicles. The Mid Hills water system is being replaced and new restrooms were installed in late 1997. Picnic tables and fire grates have also been upgraded.

An unknown number of traditionally used backcountry roadside campsites are in the preserve. Roadside camping is allowed at any previously disturbed campsites. The government has not made any improvements (such as trash containers or metal fire rings) to these sites.

COMMERCIAL SERVICES

At this time, the Cima Store is the only facility-based commercial operation in the preserve. The privately operated store on private land has a limited number of items on hand but continues to serve customers traveling on the Kelso-Cima Road. Permits for commercial operations such as movie-making and guided recreational tours have been applied for and granted within the preserve. At this time, the number of permits applied for is relatively low.

Several commercial facilities outside the preserve offer lodging, food, and other items. The town of Baker has several motels, gas stations, restaurants, fast-food services, and markets. Small facilities at Halloran Summit and the Cima Road exits off Interstate 15 offer gasoline and related services. Primm, Nevada, about 15 miles from the preserve's north boundary, contains a major resort/casino. Nipton offers a small amount of lodging and a few camping spaces. Goffs has a small restaurant that is not always open for business, and Fenner has a gas station/market. Needles offers a broad range of services to visitors.

PROVIDENCE MOUNTAINS STATE RECREATION AREA

Within the boundaries of Mojave National Preserve is the Providence Mountains State Recreation Area. The prime attraction is Mitchell Caverns, where guided tours are offered. A developed campground with six campsites and RV camping on the lower parking lot receives an estimated 25,000 users per year. The caverns tour attracts an estimated 14,000 people each year. The total annual use of the state park in 1986 was estimated at 60,000 people.

SOCIOECONOMIC DESCRIPTION OF THE PLANNING AREA

Additional information on the socioeconomic environment is provided in a separate analysis entitled "Economic Impact Analysis: Northern and Eastern Mojave Planning Area" by Dean Runyan and Associates.

The planning area covers three California counties. Roughly 40% of the preserve is in San Bernardino, 59% in Inyo, and the rest is within Mono County. From a regional perspective there are relatively very few people living on private property within the planning area boundary, particularly when the large metropolitan cities of Los Angeles and Las Vegas are considered. Both of these large cities are within 150 miles of the planning area and make a large contribution to the pool of annual visitors. In a recent survey, 81% of all visitors to Mojave National Preserve were from California. About 35% drove 100–200 miles to arrive; 40% traveled between 210 and 500 miles. That would indicate that most visitors are from the Los Angeles or San Francisco areas. There is a great contrast between visitors to Death Valley and Mojave: only 32% of the total visitors to Death Valley are from California, and 69% are international visitors.

LOCAL AND REGIONAL COMMUNITIES

The 1990 Census Indicated the Following Community Populations:

Baker, California

Baker's estimated current population is 550. Most other unincorporated communities within the planning area have populations of fewer than 50 people. Searchlight and Laughlin, Nevada, and Bullhead City, Arizona, are outside the planning area.

Needles, California and Kingman, Arizona

The city of Needles is in the eastern Mojave Desert on the banks of the Colorado Desert, 140 miles east of Barstow. The 1996 population of Needles was 5,750.

Over 75% of the communities in the northern desert of San Bernardino County are unincorporated. Per capita income is estimated at $12,000. Most of the population in Inyo County lives along California Highway 395, where many residents are employed in services, retail, mining, and agriculture. An increasing amount of the economy is being driven by tourism. More than 98% of Inyo County land is governed by federal agencies. Because of limited private land, and large ownership of water rights by the Los Angeles Department of Water and Power, limited growth is expected. Most of San Bernardino County, which is in the planning area, is managed by federal agencies such as the Bureau of Land Management, National Park Service, and the military.

MOJAVE NATIONAL PRESERVE COMMUNITY

Mojave National Preserve has a population of seasonal and permanent residents who live in many parts of the preserve, such as Lanfair, Pinto and Round Valleys. An estimated 200 full-time residents now live in the preserve. Of those, 109 live in Round and Lanfair Valleys. An estimated 136 people stay on their properties during weekends in the Round and Lanfair valleys. Private property ownership breaks down into two parts, land owned by Catellus Corporation which owns approximately 6% of the total land base, and other private owners, who own 5% of all private land within the preserve. Most of the people living in the preserve on a full-time basis are retired or self-employed. An estimated 20– 25 full-time residents are employed in ranching, mining, at Union Pacific Railroad, or at Castle Mountain Mine.

SOCIAL VALUES

During a meeting to gather information on social values the residents of the preserve expressed varying attitudes about their informal community. Most people live to obtain a sense of independence from government and its regulatory controls and freedom from urban crime and pollution. The residents love the land and the opportunity to experience the four seasons. They are concerned about the potential impacts on their land from increased visitation. Many residents would prefer that the National Park Service leave them alone to live their lives unhindered by regulations, yet some have voiced a desire to have the presence of rangers to help patrol and protect the land and offer emergency assistance when needed. Despite the desire for independence, there is a strong sense of community among the residents. Several residents voiced the strong sense of support that neighbors offer to each other. Living a great distance from stores and other services that are common in cities creates the situation where neighbors rely on each other for materials and labor to fix broken water pipes, doors and other items. Social events were described where several neighbors gather to eat, drink, and talk. Close friendships appear to exist between many of these people. Overall, the desire for privacy and independence exist, as do the social ties that make up a close-knit neighborhood and are not commonly found in many urban settings.

ROADS AND CIRCULATION

The NEMO planning area contains several highways that serve as major transportation corridors through the state. Intestates 40 and 15 function as major routes between Los Angeles and southern California and many states to the east. A sampling of I-40 traffic during 1995 indicated that trucks accounted for 19-31% of overall traffic and recreational vehicles, 4-6%. The rest were passenger vehicles. Interstate 15 also receives a heavy amount of truck traffic, but its percentage of overall traffic is not known. I-15 carries the highest daily traffic volumes of any highway in the planning area. I-15 traffic increases on weekends as residents of Los Angeles travel to Las Vegas and then return. Traffic accidents, snow on high passes, and other incidents can close sections of I-15, forcing traffic to be routed through Mojave National Preserve and back onto I-15. The rerouting of traffic through the preserve has resulted in additional accidents and other impacts, according to San Bernardino County officials.

Old Route 66 (National Trails Highway) runs through the south end of the planning area between Needles and Ludlow. The road is maintained by San Bernardino County. An increasing number of travelers have been attracted to this road because of the American culture and nostalgia attached to this highway. Movies such as *Bagdad Cafe* and other media have raised awareness to the point where even international visitors are driving the highway. Many cities and businesses along the highway are promoting Route 66 for the potential revenues from tourism. The highway has been nominated for the National Register of Historic Places (see "Cultural Resources" for more information).

Traffic has increased on San Bernardino County roads over the past years. The roads carry travelers north of Palm Springs, through Mojave National Preserve, onto I-15, then back again. It is assumed that most of these travelers are headed to Las Vegas for the weekend.

The following table shows traffic figures as recorded by the California Department of Transportation for 1995. Figures reflect the combined number of vehicles traveling in both directions.

TABLE 16: 1995 AVERAGE DAILY TRAFFIC LEVELS

State Highway	Peak Hour*	Peak Month	Annual Average
I-15, Cima Road interchange	4,200	32,000	29,000
I-40, Kelbaker road interchange	1,200	12,400	11,000
Route 127, San Bernardino/Inyo County line	110	660	550
Route 178, Between Junction 127 and State line	95	890	750
Route 190, Junction of Rte. 136 east of Owens Lake	110	950	550
Route 190, Death Valley Junction	120	860	680
Route 395, Coso Junction rest area	1,150	7,200	5,300

*Peak hour is the hour during which the heaviest volume of traffic occurs on a roadway.

ROADS

Mojave National Preserve has six main paved entryways: Kelbaker Road, Cima Road, and Ivanpah Road off of I-15 on the north side, Kelbaker Road and Essex Road off I-40, and Ivanpah Road off of the Goffs Road (half of the length of this road is unpaved) on the south side. All these roads generally lead visitors in a north-south orientation with Kelso as a common point for four of these roads. The roads are all suitable for standard sedans, are in good condition and currently maintained by San Bernardino County. Among these roads, the Kelbaker road between I-40, Kelso-Cima Road and Morning Star Mine Road receives the heaviest use. Most traffic occurs on weekends as many drivers use these roads to travel to and from Las Vegas and Palm Springs.

TABLE 17: JULY–DECEMBER 1996 TRAFFIC COUNT

Highway	Average Daily Traffic
Kelbaker Road, southbound off I-15	45
Cima Road, southbound off I-15	55
Ivanpah Road, southbound off Nipton Road	144
Kelbaker Road, northbound off I-40	167
Essex Road, northbound off I-40	20
Ivanpah Road, northbound off Goffs Road	18

Note: numbers represent incoming vehicles only.

A road inventory indicated that there are approximately 2,180 miles of roads within the preserve. Approximately 345 miles of roads were closed to mechanized use by congressional designation of wilderness in the 1994 California Desert Protection Act. Informal roads were created for access to utility corridors, ranching improvements, private property, mines, homesteading, favorite hunting or camping areas, viewpoints and for a variety of other reasons. When Congress created wilderness within the preserve through the CDPA, roads or routes within wilderness were closed to mechanized use except in the following cases: people with disabilities using wheelchairs suitable for use in indoor pedestrian areas, private property owners and ranchers who need to use roads in wilderness to get to their property, and individuals involved in mining operations. The National Park Service grants access by appropriate means and methods.

The National Park Service maintains approximately 20 miles of unpaved road, including the Wildhorse Canyon and Kelso Dunes roads and the road connecting Zzyzx to I-15. The preserve also has ungraded and four-wheel-drive roads. The National Park Service does not maintain any paved roads at this time. San Bernardino County maintains an estimated 255 miles of road in the preserve and Lanfair Valley, of which 176 miles is paved.

On March 21, 1997, AT&T Corporation released an environmental report proposing to remove its communication cable that extends through Mojave National Preserve and to New Mexico to the east. AT&T proposes to remove the cable and 21.6 miles of access corridor, five segments along the Cedar Canyon Road (8.2 miles), one segment along the Kelbaker road (11.1 miles) and one segment near Soda Lake (2.3 miles). If the plan was approved, these access segments would be eliminated and rehabilitated to a predisturbance state.

TRAILS

Few surface water sources in the preserve are suitable to support extensive backpacking, but there are many opportunities for day hiking. There are two developed trails, one between the Mid Hills and Hole-in-the-Wall campgrounds, which is 8 miles one way. The second trail leads to Teutonia Peak from Cima Road and is 2 miles one way. Piute Canyon trail is an undeveloped trail. Abandoned roads offer hiking opportunities, such as a 1.5 mile one-way hike up Caruthers Canyon to an old gold mine.

Mountain bike use in the preserve is unknown at this time. Bicyclists have recorded their names in the Mojave Road register, indicating their use of this route. Mountain biking is the third fastest growing equipment-related outdoor activity in the country, as of 1995. Off-road ridership has increased nationally by 20% every year since 1990. In 1995, an estimated 2.5 million to 3 million of those riders were classified as avid trail cyclists.

ADMINISTRATIVE OPERATIONS AND FACILITIES

ADMINISTRATIVE FACILITIES

The headquarters for Mojave National Preserve currently occupies space leased in the Mercado Mall in Barstow, California. Other suites are available for leasing, but secured parking for government vehicle storage is limited. Commercial support services and housing are readily available in Barstow, Victorville, and surrounding communities. A small building was constructed in Baker in early 1998 for use as an office for interpretive, visitor protection, and maintenance staff. A mobile home in Kelso is used as a residence/office for a visitor protection ranger. A wildland fire control operation at Hole-in-the-Wall includes a dorm, office space, a vehicle storage building, and other storage buildings. Electricity is provided by a generator. The ranger station at Hole-in the-Wall is also used as a field office for NPS staff. A visitor information center in Needles is in a leased building. Needles provides a variety of housing options for employees.

EMPLOYEE HOUSING

Preserve employees find housing in many different ways. At headquarters in Barstow, employees obtain housing in the local communities. Preserve employees in Baker have the option of living in one of the five doublewide trailers once owned by the California Department of Transportation (CalTrans) or renting space in the community. Rentals are limited in Baker. The trailers, which are in an old Caltrans maintenance yard on BLM-managed federal land at the east end of town, are in fair to good condition. The preserve is upgrading them for occupation. The maintenance yard has plenty of open space to be used for vehicle and material storage but lacks buildings for office and work space.

Kelso has a number of doublewide trailers that the railroad uses to house employees. Not all of the trailers have been occupied, and the National Park Service was able to rent one of them for employee housing. The stability of this housing option is uncertain. The National Park Service also owns a home northeast of the Hole-in-the-Wall ranger station off Black Canyon Road. The home is in poor condition and would need major rehabilitation before it could be occupied, but the potential exists.

The Hole-in-the-Wall fire center dormitory, which is in fair to good condition, houses 12 employees. Current staffing plans call for 15 employees in 1998 and up to 20 employees in the future, which means the dormitory would be inadequate. Staff offices are also located in this building.

The preserve opened a visitor information center in Needles, California, in December 1997 and stationed one staff member there. Existing housing in the community meets employee needs.

MAINTENANCE

An office building was constructed in early 1998 in the maintenance section of the abandoned CalTrans yard in Baker. The yard has several small structures that are used for storage and office space, and covered parking. There is a fair amount of unused open space. Some maintenance work is also based out of the Hole-in-the-Wall fire center, where there are a few small storage buildings.

EDUCATION AND RESEARCH CENTERS

SODA SPRINGS

Soda Springs is a few miles south of I-15 off the Zzyzx exit. It is home to the Desert Studies Consortium, a part of the California State University system. The facility offers dormitory-like lodging and classroom space for researchers and students attending field classes and extended education courses. Solar, diesel, and wind power provide electricity to the buildings. The facility consists of a set of historic and modern buildings all located on NPS property. The historic buildings and site features have been nominated for the National Register of Historic Places as a historic district. There are 12 buildings, 3 sites, and 11 structures that have been identified as contributing elements to the historic setting. A total of 12 buildings/structures that have not been identified as contributing to the historic setting. All the historic buildings and a few others are NPS property.

The consortium has repaired and maintained most of the buildings and site features over the years to keep them in good condition. The site, structures, and buildings are managed through a cooperative agreement between the consortium and the National Park Service. A caretaker associated with the consortium lives at the facility. The consortium has provided the National Park Service with information on natural resources and opened the door for cooperative work in educating visitors and interpreting resources.

An unstaffed visitor information shade structure with restrooms off the entry to the education center is behind a gate to keep visitors from driving in the area. A path with interpretive signs leads from the shade structure and around the pond directly to the east. The shade structure has been evaluated by an architect, who determined a need for major repairs.

A fence and gate south of the facility keep most vehicles from the adjacent BLM Rasor off highway vehicle open area out of the facilities, but on occasion vehicles bypass the fence and come across the dry lake bed, which has been designated as wilderness.

GRANITE MOUNTAINS NATURAL RESERVE

The Granite Mountains Natural Reserve is part of the University of California (UC) natural reserve system and is dedicated to ecological research and education. The reserve serves as a classroom, laboratory, and ecosystem library for field studies in natural sciences. Every year, field classes and researchers come to the reserve. With the passage of the California Desert Protection Act, Congress designated 9,000 acres of the Mojave National Preserve as the Granite Mountains Natural Reserve. Within the 9,000 acres, approximately 2,500 acres are owned by the University of California. Most of UC facilities rest on UC property. The National Park Service has no jurisdiction over UC property but the two entities plan to enter into a cooperative agreement that will set the framework for a cooperative collaborative working relationship. Conflicts exist between the UC and members of the public who trespass on the land to climb the rock faces in the Granite Mountains.

LAND OWNERSHIP AND USE

(See appendix C: Land Protection Plan)

MINERALS

Mineral resources in the preserve range from metallic to nonmetallic, or industrial, minerals. Mines in the preserve have produced gold, silver, copper, iron, tin, lead, and tungsten. Industrial mineral production includes cinders, fluorite, gemstone, magnesite, marble, and sericite. The minerals produced in the preserve are most easily classified by the tonnage and grade available for exploitation.

Tin and tungsten deposits in the preserve are in low-grade deposits of limited tonnage. These metals are considered to have a very low or no potential for discovery of economic deposits. Additionally, the size and grade of any economic deposits would be insignificant in terms of the quantities of these metals produced and consumed on a regional or national basis. Several mines in the preserve have produced combinations of copper, lead and silver. All these deposits occur as vein or replacement types of limited size and moderate to low grade. While the total amounts of these metals produced seems significant, in the scope of regional and national production, the amounts are insignificant.

Iron deposits exist in the preserve, and the tonnage and grade was adequate for economic production at one time. The demand for iron ore in the West has diminished because of a restructuring of the steel production industry. The current supply of iron ore in the region exceeds demands for feed stock in cement production. Deposits in the preserve are small and of moderate grade (40-46% iron).

Gold has been produced from several mines in the preserve and occurs as vein or disseminated deposits. Most gold production since 1986 has been derived from two moderate size, low-grade, high-tonnage open-pit mines. Resources at these two open-pit mines are exhausted. Favorable geologic environments do exist for the discovery of other similar deposits, but these areas have already been explored and evaluated by various mining companies without favorable results. The lack of available unclaimed land and the regulatory constraints for exploration and development seem to preclude the discovery and development of any low-grade, high-tonnage open-pit gold mines in the preserve. Gold has been mined from vein type deposits in the preserve, but the known occurrences were of limited length, depth, and width. Deposits of this type have high development and production costs. The limited extent of known deposits in the preserve makes future economic exploitation of gold in vein type deposits in the preserve doubtful. The production potential of gold from claims in the preserve (290,000 total ounces inferred resources from the 1990 report "Minerals in the East Mojave National Scenic Area, California" by the U.S. Bureau of Mines is insignificant in the scope of national and international production and consumption.

Of the industrial minerals in the preserve, fluorite, magnesite and sericite have small recorded production. The deposits hosting these minerals are of limited size and grade. Deposits of these minerals are insignificant in the scope of national production and consumption. There are also known deposits of cinders and limestone in the preserve. These deposits are large, and the limestone is reported to be high quality suitable for chemical uses. Cinders have been produced from two deposits in the preserve, with most of the production used in the Las Vegas, Nevada, area and in Needles, California. Cinders are used for building block and landscape material. Limestone deposits within the preserve compete in the Los Angeles market, and there are a number of limestone deposits in production that are closer to the market. There also are other deposits of limestone available for development in the region. Many of these deposits are closer to the Los Angeles area and therefore hold a more favorable market position than deposits in the preserve. Transportation costs are a large factor in the marketability of industrial minerals, often more critical than quality or tonnage. Limestone deposits in the preserve have a favorable position because of nearness to transportation, quality, and deposit size, but they must compete in a highly volatile market.

Gemstone resources in the preserve are all classified as recreational in nature. The gemstones are sought by hobbyists or amateur collectors (individuals and clubs) rather than commercial development. None of the deposits exhibit the characteristics of significant size, uniqueness, or quality to hold a significant place in the gemstone market.

GRAZING/RANGELAND

Grazing has been a continuing activity in the northern and eastern Mojave Desert for well over 100 years. This section describes the transient grazing of the 1850s–1870s, early 20th century cattle ranching, and current conditions.

> American exploring parties brought large numbers of animals into the East Mojave (desert) in the 1850s. After the Mojave Road became a wagon road in 1859, the passing of trains of animals and wagons over the road became a daily occurrence. ...There are definite records as early as 1859 of trains pausing for a day or two at a time to graze their animals on the relatively lush range lands on the Cima Dome and in Lanfair Valley.
>
> ...In the 1870s, immense herds of sheep and other stock were driven over the Mojave Road to Arizona and some on to New Mexico. ...During 1875 alone, more than thirty thousand sheep (and perhaps as many as fifty thousand) were crossed over the Colorado River into Arizona at Hardyville. (King and Casebier 1981)

Much of the desert had been heavily grazed at various times between 1900 and 1940. For example, in 1920 the Rock Springs Land and Cattle Company alone owned 9,233 cattle, where today fewer than 3,500 are authorized to graze (BLM 1988). Both the acreage and the intensity of livestock use on federal land in the California desert have declined during this century. This decline may be due to a decrease in the demand for beef, stricter controls by the land management agencies, more efficient and cost-effective methods of raising beef at other locations, and a decrease in forage production. Also, the rapid expansion of feral burro populations since their protection under the Wild and Free-Roaming Horse and Burro Act of 1971 has caused intense conflicts over forage in some areas (BLM 1980).

Cattle-raising in the Mojave Desert was apparently never really seen as a growth industry. In 1929, Thompson stated: "The natural conditions in most of the region are unfavorable to raising cattle on the open range, and there seems to be little likelihood that the industry will grow. The principal difficulty is that the supply of natural feed is not sufficient to support the cattle. In the rainy season annual plants that spring up furnish feed, but these quickly die and in most of the region there is no feed for many months."

In the Mojave National Preserve livestock grazing is permitted on over 1.2 million acres on 10 allotments.

TABLE 18: GRAZING MANAGEMENT

Allotment Name and est. % of Allotment within Desert Tortoise Critical or Category 1 Habitat	Total Acreage of Allotment	Percent of Allotment within Mojave National Preserve (Acreage)	Total AUMs**	Percent of AUMs within Mojave National Preserve (AUMs)
Colton Hills (70%)	140,000	100%	2,877	100%
Gold Valley (0%)	16,190	100%	1,152	100%
Round Valley (0%)	653	100%	27	100%
Clark Mountain (2%)	88,312	20% (17,500)	1,872	20% (371)
Granite Mountains (10%)	276,125	95% (262,000)	4,716	95% (4,476)
Kessler Springs (70%)	252,172	87% (219,000)	8,016	87% (7,615)
Lanfair Valley (60%)	339,553	80% (272,400)	12,168	95% (11,560)
Valley View (70%)	281,802	95% (268,000)	8,485	95% (8,069)
Valley Wells (60%)	237,258	18% (43,600)	4,644	18% (853)
Piute Valley* (90%)	33,468	44% (14,700)	0	0
Total	**1,665,533**		**43,957**	
BLM TOTALS	**411,490**	**25%**	**6,958**	**16%**
MOJAVE TOTALS	**1,254, 043**	**75%**	**36,999**	**84%**

* = Ephemeral grazing

** = An AUM is an Animal Unit Month, defined as the amount of forage required by an adult cow and calf (or an equivalent combination of other animals) for one month (BLM, 1984).

ENVIRONMENTAL CONSEQUENCES

ALTERNATIVE 1: PROPOSED ACTION

IMPACTS ON NATURAL ENVIRONMENT

The recovery of the desert tortoise would likely be accelerated by implementing the proposed action, which incorporates the management recommendations of the 1994 U.S. Fish and Wildlife Service Desert Tortoise Recovery Plan. Implementing the recovery plan's recommendations as proposed would have positive effects on the soil, water, vegetation, and wildlife, including the desert tortoise. Hunting would be allowed when desert tortoises are inactive on the surface (September–February). Restricting the hunting season would allow better control of illegal use of weapons in the non-hunting season. This alternative should result in fewer desert tortoises being killed and less cultural resource damage by vandals. Where vehicle-related tortoise mortality was identified, some roads may be closed or fenced, or speed limits imposed during periods when the tortoises are most vulnerable to being run over by vehicles.

Mojave National Preserve's native plant and animal populations would benefit from this alternative. As burros were removed and grazing was reduced through acquisition, more water from natural sources would be available for wildlife use and vegetation, and the amount of soil compaction should diminish. These actions would also reduce impacts on the desert tortoise and native wildlife. As livestock tanks, troughs, and guzzlers were removed (if studies indicated a benefit to wildlife and vegetation from their removal), the environment would start a restoration process. An immediate and dramatic change would occur at the sites where these water developments are removed and vegetation is allowed to recover. Over time wildlife populations would adjust to changes in water availability, and a desert much more typical of a pre-Columbian era should result. Visual aesthetics would change over time as the native vegetation and soils recover from burro and cattle grazing. The time that would be needed to complete the natural recovery process is unknown.

Not allowing additional guzzler installations for wildlife populations, which are naturally limited by the amount of existing water, would limit their population levels. There would be no new artificial water developments to supplement wildlife populations and subsequently no increased opportunities for visitors to observe and to hunt those specific wildlife species. There would also be less opportunities for plant and soil damage from wildlife populations, kept at unnaturally high populations levels due to the addition of artificial water developments.

No existing guzzlers are planned to be removed under this proposal. Future studies would determine the impacts from removing or retaining guzzlers.

The tamarisk trees at the Kelso Depot have not been tied to the historic landscape and might need to be replaced with trees that restore the historic landscape. Removing the trees might displace nesting birds, but no listed bird species are associated with this area. Native vegetation and wildlife would benefit from tamarisk control efforts. This action would not affect the tamarisk trees along the railroad tracks.

Removal of the burro population would cause short-term disturbance of the desert vegetation and wildlife due to noise (helicopters, horses, trucks, wranglers, etc.) and inadvertent trampling from capture crews and their equipment during the capture operation. Larger mammals such as deer and bighorn would leave the local area during these activities. If and when the third phase is implemented, burros would be killed at a time of year when tortoises are not active. This would limit the possibility of attracting ravens to the carrion that would prey upon young tortoises. Burros would be killed away from public view. As burros are eliminated and grazing is reduced, the noticeable disturbance to the landscape including overgrazing, fouling of springs and seeps, burro trails, and soil compaction would diminish over time. Complete recovery would take decades.

The possible closure of some campsites located in critical habitat or in sensitive areas would reduce the potential for impacts to wildlife and plant species and other natural resources in these areas.

Establishment of new semi-developed campgrounds would impact soils and wildlife habitat during and after construction, but impacts on other undeveloped areas could be reduced by visitors relocating to semi-developed campgrounds.

Designating campsites with fabricated fire rings or markers and closing others in high use areas or sensitive habitats could reduce the negative impacts on soil, water sources, desert tortoise, vegetation, wildlife, cultural features, and other resources in sensitive landscapes.

Constructing roadside pullouts for interpretive displays and a visitor center at the Kelso Depot would disturb soils and plants. Creating a museum and interpretive facility at Kelso Depot would increase visitor understanding and appreciation of natural resources. The depot would be a good location for the NPS staff to present the area's natural and cultural resources and ways in which the public can help protect these features. As visitors received information on low-impact camping and as the maintenance staff managed adverse impacts, soil disturbance and impacts on vegetation from roadside camping would be minimized. Adverse impacts on soils, wildlife, and vegetation would be limited by the use of previously disturbed areas for construction.

The landscape surrounding the Kelso Depot and the properties proposed for acquisition have been heavily impacted from previous vehicle traffic and people walking on these sites. About 2-3 acres of land that is now private property could be disturbed by construction of parking, walks, and new visitor facilities. Construction would adversely affect natural resources such as soils and vegetation, but most land being considered for development has been previously disturbed from prior use. There would be short-term impacts from dust caused by construction activities, but mitigation efforts such as watering excavation work would minimize dust levels. Long-term effects on dust generation would be beneficial as parking lots are surfaced.

If Union Pacific was willing to cooperate with the National Park Service to establish an outdoor railroad exhibit area and a train viewing platform at Kelso, an estimated 1 acre of previously disturbed land could be negatively impacted by construction and visitor use. Previously disturbed land would be used to minimize impacts.

Drilling for a new water well to an estimated depth of 2,000 feet to support the Kelso Depot would place an additional demand upon the groundwater. No effects on natural resources or surface water sources would likely result from the use of this water table at this depth. Other than the desert tortoise, there are no known threatened or endangered species associated with the habitat that exist around the depot; therefore, no impacts would result. If the National Park Service acquired additional historic structures, these buildings would be surveyed to determined if any endangered bat species would be impacted. Appropriate mitigating measures would be taken if needed.

The use of heavy equipment to reinforce the dike north of the Kelso Depot and place boulder riprap or other armoring on the face of the dike would disturb soils, vegetation, and wildlife habitat. To mitigate impacts, vehicles would be required to work to within the area that was disturbed when the dike was created. This area also functions as a drainage wash. Since the work would be done within desert tortoise critical habitat, a biological survey would be conducted before any work began to locate and flag any active tortoise burrows. Equipment would be diverted around burrows where possible, and tortoises would be relocated to a safe area if necessary. A park employee or contract biologist would monitor construction activity to keep equipment away from burrows and to locate any tortoises present at the construction area.

Constructing a proposed roadside pullout and on interpretive path at the historic iron ore loading site at Kelso would disturb some vegetation and soil. Soil disturbance would be shallow because of the character of the new visitor facilities. The site would be surveyed for the presence of tortoise burrows. Efforts would be made to direct the path around significant vegetation and any burrows to reduce impacts. Vegetation and soils adjacent to the path and parking would be affected by trampling. Previously disturbed ground would be used for construction to limit negative impacts on soil, wildlife, and vegetation. The National Park Service would follow county development codes and regulations for construction on nonfederal land.

As nonfederal lands were purchased, resources would be protected against incompatible development. The National Park Service would try to limit any new incompatible development through acquisition and to provide permanent protection for the preserve resources. If funds were not available for acquisition, impacts would be similar to those of the no-action alternative.

IMPACTS ON CULTURAL RESOURCES

Archeological sites, historic properties, cultural landscapes, and ethnographic resources in Mojave National Preserve would benefit from the proposed action through the implementation of a systematic and integrated inventory, research, and preservation program to protect, preserve, and interpret properties listed on, or determined eligible for listing on, the National Register of Historic Places.

Cultural resources may be adversely affected by vandalism or inadvertent damage resulting from an increase in visitation. Actions to mitigate these impacts would be initiated, as funding allows, including increased patrols, monitoring to detect vandalism and illegal collection, and an increased level of visitor education programs. Restriction on hunting seasons would allow more control of illegal weapon use during the nonhunting season and would enhance cultural resource protection.

The potential for burros and cattle to trample and damage or destroy cultural resources would diminish with this alternative. The number of cattle grazing within the preserve would not increase, and as grazing leases became available for acquisition by the government, allotments would be permanently retired. Consequently, the total number of working cattle ranches in the preserve would decrease over time. Many people regard desert cattle ranching as a historical use; therefore, some people would consider a decline in the number of ranches a negative impact. If the National Park Service acquired private land, an archeological survey would be conducted to identify and properly deal with existing features with cultural significance. The design of future facilities would mitigate negative impacts on identified significant cultural features according to appropriate NPS policies and standards.

The Kelso Depot development concept plan preferred action recommends that parking, a comfort station, and an unstaffed information center be located away from the depot. This would have a positive effect on the historical setting for the depot by removing the existing informal parking areas around the depot. Reconstructing a historical landscape around the depot would also have a positive effect on the visual and cultural setting of the depot.

The proposed NPS acquisition and restoration or stabilization of the historic Kelso general store/post office and/or the schoolhouse would have a positive effect on the historical setting for the town of Kelso. It would also help preserve these buildings.

The National Park Service conducted an archeological survey of the Kelso Depot property in 1996 and submitted a report as part of a draft historic structure report for the depot in March 1997. The report recommended that several items be left undisturbed during construction. Among these items were palm trees, brick pavement edging, and lamppost bases around the depot. Mitigation efforts would include fencing or other barriers to protect these objects. These items would be considered in future design work according to federal guidelines.

Cultural resources would not be affected by dike modifications at Kelso. Construction work would be limited to soil that was previously excavated to a depth of up to 10 feet below the existing grade.

Constructing a roadside pullout and an interpretive path at the historic iron ore loading site at Kelso could disturb cultural resources in the ground. An archeological survey would be completed before site-specific design work to identify any archeological features and to mitigate negative impacts. People walking off paths at this historic site could adversely affect the resource. The interpretive program would provide messages about respecting cultural resources and staying on paths to minimize impacts. The site would benefit from actions to preserve it and indirectly from visitor education about the value of the resources.

Lands containing significant cultural resources important to the history of the preserve could be acquired and protected by stabilization efforts and regular enforcement patrols. Bringing historic resources into public ownership would increase opportunities for visitors to enjoy these resources.

IMPACTS ON NATIVE AMERICAN INTERESTS

Developing communication protocols and establishing a cooperative agreement with affected tribes would increase the level of communication and result in greater consideration of Native American issues during decision making. Greater understanding of concerns would foster better relationships. As communications progressed, the preserve would gain a better understanding of the presence of sacred and traditional use areas and be better able to protecting them.

Information provided at the Kelso Depot visitor center might raise public understanding and appreciation of tribal ties to the Mojave Desert. Native American sacred sites would receive additional protection, and camping near those sites might be eliminated.

IMPACTS ON VISITOR USE, SERVICES, AND FACILITIES

Visitor aesthetics would change significantly. There would be fewer opportunities to see burros in the preserve, but habitat would slowly recover, providing a long-term aesthetic benefit. Some visitors would consider the absence of the burros an adverse effect, but others would regard it as a positive effect. If the third stage of the burro elimination plan, killing burros, was carried out, some people would be offended. A visitor's opinion of aesthetics might be influenced by seeing fabricated devices in an otherwise natural setting and the changes in wildlife numbers by the replacement of guzzlers with restored natural waters.

Damage to natural and cultural resources would be reduced at known sensitive sites (such as desert tortoise critical habitat, Fort Piute, and abandoned historic mining structures) by evaluation of the damage and subsequent actions to eliminate those impacts. Restrictions on camping and day use might cause people to move into areas elsewhere within or outside the preserve, increasing the level of use and crowding at those locations.

Visitor safety would improve with an expected decrease in the number of accidents involving vehicles and burros or cattle. Visitors would experience fewer disruptions, and greater safety with the restrictions on the seasons, species, and areas where hunting would be allowed. Bighorn sheep hunters would not be affected by this alternative. Hunters of upland game bird and deer would continue to be limited as to hunting areas. Eliminating hunting for all other species would be a negative effect on those hunters. Placing restrictions on the areas, species, and methods of trapping would adversely affect a few trappers who use the preserve for this activity.

Construction activities at the Kelso Depot would adversely affect vehicle traffic near the construction area and people's ability to visit the depot over the short-term. Minor traffic delays might result from construction work. The construction contract specifications could be written to require the contractor to limit traffic delays to 10 minutes or less with exceptions for a few situations where more time would be needed. A temporary parking area with interpretive information could be created near the depot to inform people about the depot and the restoration. This would mitigate some of the impacts on visitors.

The proposed reinforcement of the dike near the Kelso Depot would mitigate potential threats from flash floods by increasing the protection against flooding at the depot. Establishing an early warning system to warn visitors about the potential for flash floods at the depot would improve the safety of visitors and NPS employees.

Placing crossing arms at the existing railroad crossing at Kelso would decrease the potential for collisions between vehicles and trains.

Climbing restrictions would protect resources, but may negatively affect the climbing community. Restricting climbing activities to non-damaging activities would help maintain the landscape in its natural condition. Climbers using drills and permanent climbing aids would have to climb at sites other than the Mojave National Preserve.

A secondary information center at the headquarters office would serve as an information service for the community and a base for an outreach program for local schools and groups. This operation could be similar to those established in Baker and Needles. Local residents near headquarters would not need to travel to Baker for information. The existence of the BLM Desert Information Center and this information center could result in a duplication of functions if not properly coordinated.

An interpretive plan would result in a coordinated long-range program for interpretive development and direction. Ranger-led tours of Soda Springs would offer more access to and information about the historic properties and the area's history. Improvement of the Soda Springs self-guiding tour and visitor structure would improve the quality of the visitor experience and encourage visitors to stay longer and learn more about the cultural, natural, and educational setting this site. During 1996 the number of annual vehicle trips for visitors and CSU guests on the Zzyzx road was estimated to be between 2,000 and 2,500. If minor improvements were made to the visitor facilities at Soda Springs, this could cause a slight increase in traffic, dust, and normal wear and tear to Zzyzx Road. Impacts to CSU operations may result if visitor use is uncontrolled.

The Kelso Depot information center would increase the number of informed visitors, possibly enhancing their experience and enjoyment at the preserve. Adding a museum and interpretive facility at Kelso Depot would increase traffic at the intersection of Kelbaker and Kelso-Cima roads, with a greater potential for traffic or train and pedestrian accidents. In 1997, approximately 90% of all the preserve's traffic passed through this intersection. Parking lot locations and designs would consider visitor safety. If passenger trains stopped at the depot, more visitors would experience the depot's displays and exhibits. This could lead to overcrowding and a poorer quality of experience. Visits by train passengers would need to be carefully coordinated to be successful, but it would provide an alternative transportation mode and reduce environmental impacts caused by automobiles. Adding food service in the Kelso Depot might lead to increases in the duration of visitors' stay, giving them more time to visit and experience the different parts of the preserve. It also might give them an additional reason to stop at the depot and see the displays and interact with NPS staff. The food services might be a distraction to the visitor center if it was not designed and operated in a way that would complement the visitor center.

Improving accessibility at some campsites and trails at Mid Hills campground for visitors with disabilities would allow more opportunities for these visitors to use these campgrounds.

NPS limits on the number of large groups using the Mojave Road (to reduce conflicts at campsites and avoid possible vehicle congestion) would affect the camping experience along the Mojave Road. The availability of sites would be diminished, but the quality of the camping experience would be improved by a decrease in crowding. The Mojave Road's surface conditions would be retained as near to current conditions as possible, or as determined in the proposed road management plan. Traffic flows would be somewhat regulated by the control of large groups. This action could also reduce the negative impacts on the surface conditions. Daily traffic levels would continue to fluctuate according to public interest in the Mojave Road.

As private lands were purchased, more public lands would be available for visitor use and fewer incompatible development activities would occur in the preserve. There would be fewer complaints about trespassing and some fences could be removed, creating a more natural, open landscape. Visitors would be less confused about what lands they could use. Acquisition of nonfederal lands and interests would reduce potential for additional access restrictions by private parties.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

A separate analysis of socioeconomic conditions in the planning area and the effects of the proposed action was conducted by Dean Runyan Associates under contract to the National Park Service. That analysis concluded that no significant effects would occur in the NEMO planning area as a result of the proposed action. There would be some loss of grazing related jobs if allotments were acquired, but the overall effect would be offset by an increase in tourism jobs. Refer to that report for details.

Acquisition of private lands would remove those properties from county tax rolls. However, the federal government provides payments to the counties in lieu of taxes to compensate them for their loss of taxes. This program is coordinated by the Bureau of Land Management and payments are made annually for entitlement lands and every five years for acquired lands. Payment is computed based on 1% of the amount paid for the property.

IMPACTS ON ADMINISTRATIVE OPERATIONS AND FACILITIES

The initial cost of burro removal would be high. As of May 1998, the preserve's burro population was estimated at more than 1,300. Using BLM figures (estimated costs of $1,200 per burro, plus staff time and costs), it is estimated that the cost of capturing and adopting all these burros would be about $2,160,000. The estimate of 1,300 animals was adjusted to include an estimated 15% increase per year for the next four years.

This alternative would result in higher administrative costs to implement the recommendations of the desert tortoise's recovery plan. These costs would diminish when the desert tortoise population was considered recovered. Minor costs would result from administration activities such as wilderness access, guzzler maintenance, water source monitoring, wildlife management, habitat restoration studies and work, law enforcement activities, managing camping restrictions at designated campsites, and construction of improvements to facilities for visitors with disabilities. The NPS administrative workload would increase with the added responsibility of overseeing the depot's concessions operation.

Operating a Kelso Depot museum and interpretive facility and possibly restoring or stabilizing the general store/post office and schoolhouse at Kelso would increase NPS administrative workload and funding needs. Additional funds would be needed for facility operations, maintenance, and administrative functions at the depot. Using the general store/post office for interpretation and creating an outdoor railroad exhibit area would increase the demand for funding and staffing of maintenance and interpretive programs.

New or improved maintenance facilities at Baker and Hole-in-the-Wall would improve operation capabilities. The NPS workload might be relieved by contracting some maintenance work. A shared maintenance yard in Kelso would improve the efficiency of road maintenance operations by providing a central storage yard for equipment and materials and reducing drive time to work projects.

New or renovated housing in the preserve would decrease the time for employees to get to their jobs and save vehicle fuel. The new housing would place an additional workload on maintenance staff. NPS housing at Baker would be made more energy-efficient where possible, but it would still not be up to NPS standards for housing until trailers are replaced. Improvements would cut down on high energy costs during the summer. New housing at Baker would reduce energy use for cooling at housing.

There would be a large initial administrative workload and cost to acquire properties. However, this workload would diminish over time as nonfederal lands came into public ownership. Some properties have buildings or other structures that may be adaptively used. If this happened, the preserve might have to repair or upgrade the structures to bring them up to current code. Any structures used by the preserve would require a long-term maintenance commitment. Properties acquired with existing disturbance (such as mines or corrals) might need to be restored or stabilized to preserve historic features. Major restoration work would be considered in separate detailed plans.

IMPACTS ON EDUCATION AND RESEARCH CENTERS

Cattle, visitors, and burros could disrupt or destroy research plots. Depending on the time and cost of these plots, the impacts could be significant; however, no evidence of damage has been seen to date. A shorter hunting season would slightly increase safety of researchers, students, and teachers. Designated campsites in sensitive areas would reduce the potential for negative effects on field research projects or sensitive resources.

Replacing visitor facilities and upgrading the self-guided tour at Soda Springs might attract more visitors, creating potential conflicts between educational use and visitors to Zzyzx. The National Park Service would seek a partnership with the University of California to collaborate on research, interpretation, and public education with the intent of increasing public awareness and understanding of natural and cultural resources in the preserve and to reduce the potential conflicts between NPS visitors and CSU objectives.

NPS acquisition of nonfederal lands would make more public lands available for educational and research use.

IMPACTS ON LAND OWNERSHIP AND USE

Elimination of free-roaming burros from Mojave National Preserve would eliminate some resource use conflicts because burros would no longer use private and state forage and water within the preserve. A shorter hunting season would result in less trespassing and fewer hunting incidents. Eliminating roadside camping near private property (where conflicts have been documented) would result in better protection of private property. Landowners adjacent to ranches would experience less cattle trespassing and fewer resource conflicts.

This alternative would probably result in changes in the operation of the grazing management program. These changes might include more restrictions on grazing activities and ranching practices, such as seasonal closures, fewer cattle grazing in an area, or relocating grazing allotments to other parts of the preserve outside desert tortoise critical habitat. Under NPS management, grazing fees might be increased. The change in grazing management operations with the chance of more grazing restrictions and higher grazing fees might influence the future value of grazing allotments. Removing burros would provide a potential benefit to ranchers by making more forage and water available for livestock use. Once a grazing allotment is retired no future grazing would be authorized for that area.

Impacts from cattle trespassing from adjacent BLM allotments should be minimal. Fencing along the BLM/NPS boundary would be a condition of all leases that abut NPS lands (Tim Salt, Acting Manager of BLM's California Desert District, pers. comm. 1998).

Private lands would be acquired from willing sellers when funds became available. Properties would be purchased at fair market value. Reduction of nonfederal ownership would result in fewer instances of visitor trespass problems for private landowners and greater management control of resource use in the preserve.

The National Park Service would cooperate with private property owners in placing signs or otherwise informing visitors about the need to respect private property. Installing signs next to the proposed interpretive area for the iron ore loading site also would encourage visitors to stay away from Union Pacific work and residential areas. The locations of signs would be coordinated with the Union Pacific. An opportunity for positive public relations would exist for the Union Pacific and the National Park Service if they could together create an outdoor railroad exhibit area at Kelso.

Impacts on mineral development activities would be the same as the existing management alternative.

CUMULATIVE IMPACTS

This alternative would allow for the long-term recovery of the natural desert environment. The speed of this recovery would depend upon the speed of burro removal and the retirement of grazing allotments. Implementing this alternative (and a similar one for Death Valley National Park) would result in a large reduction in burro populations in the California Desert Area's public lands (a 64% reduction in the Bureau of Land Management's recommended herd management level). The recovery of the entire desert tortoise population would be accelerated under this alternative.

Recovery efforts for the desert tortoise are underway in Arizona, California, Nevada, and Utah. These recovery efforts often include the retirement of grazing allotments. Grazing on desert public lands is not continuing in parts of California (Pilot Knob), Nevada (Clark County) and Utah (Upper Virgin River). These existing efforts, the efforts proposed in this plan, and future recovery efforts throughout the desert tortoise's range would result in a significant reduction in the amount of livestock grazing in the Mojave Desert.

Impacts on burros from the potential loss of habitat and a possible increase in the number of injuries or deaths might result from increased activities at three sites near Mojave National Preserve. These sites are proposed expansions at the Molycorp mine and the National Training Center at Fort Irwin and the approved and expected Castle Mountains Mine expansion. The number of animals affected at these locations are expected to be small but, they would add to the proposed reduction at the units of the national park system.

This alternative would eliminate a large area from nongame hunting activities. Fewer desert tortoises would be shot. No cumulative adverse effects on cultural resources in the national preserve would result from this alternative.

The creation of wilderness by the CDPA closed some areas to vehicle-based roadside camping, increasing the protection for natural and cultural resources in these areas. Eliminating vehicle-based campsites in wilderness would relocate some campers to nonwilderness areas, increasing the use and potentially increasing the negative impacts in these locations.

There would be less overall development of desert habitat and resources on a regional basis as up to 215,000 acres of nonfederal lands and interests in the preserve were acquired.

ALTERNATIVE 2: NO-ACTION ALTERNATIVE

IMPACTS ON NATURAL ENVIRONMENT

Most of the impacts on the natural environment under this alternative are due to the presence of burros and cattle.

Soils. Soils would continue to be affected to varying degrees by foraging of nonnative burros and cattle and their subsequent trampling, as well as by camping. Soil compaction, sheet erosion, and gullying would continue to be caused by burros wallowing and trailing (trails apparently produced by burros). The following quotation documents burro damage at other units of the national park system.

> Plant growth was inhibited and erosion accelerated in areas trampled by excessive burro concentrations (Ferrell, 1973). Douglas and Fenn (unpublished data) studied soil compaction in Death Valley by using bulk density sampling and soil penetrometer readings. They found treads of burro trails in Butte Valley (Death Valley National Park) were as heavily compacted as treads of relatively heavily used jeep roads in the same areas and soil type. Compaction extended 6-10 inches below the soil surface. The severity of soil compaction was surprising because soils in Butte Valley are granitic, and thus are relatively coarse and have poor compressibility. Heavily used burro trails on steep slopes in Death Valley and Grand Canyon have contributed to major soil movement and erosion. Carothers (1976) provides a discussion and illustration of burro damage in Grand Canyon along the Colorado River. Compacted trails are almost impervious to penetration by water; precipitation tends to run off compacted soils, leading to erosion. Compacted soils also are resistant to plant colonization. Hundreds of miles of such trails are present in Death Valley National Park and Lake Mead National Recreation Area" (Douglas and Hurst 1993).

The *Environmental Assessment: Clark Mountain Herd Management Area: Burro Management* stated that there was "excessive amounts of trailing and formation of dirt wallows by burros" (BLM 1996). Extensive burro trailing has also been seen in the Cinder Cones and Lava Bed areas of the preserve. Burro damage (wallowing, fouling, and plant destruction) to natural springs has been observed in the Ivanpah Mountains.

Cattle also adversely affect soil. The U.S. Fish and Wildlife Service's April 20, 1994, Biological Opinion on the desert tortoise provided the following information of grazing/soil impacts:

> It [grazing] also causes soil erosion and compaction, reduced water infiltration rates, and increased runoff (Klemmedson 1956, Ellison 1960, Arndt 1966, and Gifford and Hawkins 1978), leaving less water available for plant production (Dadkah and Gifford, 1980). The intensity of damage to soil caused solely by cattle is assumed to be directly proportional to the AUMs (Animal Unit Months) of forage used per pasture (BLM 1980a).

Surface disturbance from roadside camping would likely expand from the use of sites without apparent boundaries. This surface disturbance to soils and vegetation would expand over time. Favorite camping sites would increase in size as use over the years expands the campsites out toward the undisturbed desert. Visitor use of the Mojave Road would continue to create minor negative impacts such as dust and soil erosion.

Vegetation. Vegetation would be affected to varying degrees by the nonnative burros and cattle foraging and their subsequent trampling of the soil and by camping activities. Burro population control would help reduce overgrazing of the native vegetation. On average burros eat 4.5 kilograms (9.9 lbs.) of dry forage per day (Douglas and Hurst 1994). Normal plant growth patterns and rates would not resume with the presence of burros. Burro overgrazing leads to less plant biomass available for native wildlife, thus a lowering of the habitat's carrying capacity (Woodward 1976).

Numerous studies documenting native vegetation damage from burros exist, and the findings are consistent; that is, burros damage native vegetation (see Douglas and Hurst 1994). However, the results of exclosure studies are not so definitive. Exclosures are fenced areas, that exclude the animals being studied usually for many years to determine the effects those animals have on vegetation and the environment by comparing the protected area to the area outside of the fence. Some investigators have noted large differences between the plant volume and diversity inside and outside of these exclosures; other investigators have noted no significant differences. The same parameters were studied, but the studies took place at different locations.

Douglas and Hurst cited Longshore and Douglas' (1988) research results where vegetation recovery was studied following burro removal. They found significant differences in species diversity, but no differences in mean volumes of perennial shrubs inside and outside of a Death Valley exclosure. They noted that, where browsing by burros was relatively minor, over a three-year period the rapid recovery of shrubs was evident. No recovery of the perennial grasses was noted. (In this research area grasses made up 48% of the burros' diet).

The interim burro population maintenance program (keeping the herd at the target level of around 130 burros) would result in periodic disturbance to the desert vegetation from inadvertent trampling of vegetation by burros and capture crews during the capture operation.

It is known that grazing can change the species composition and densities of vegetation. The following is also from the 1994 FWS "Biological Opinion":

> Livestock grazing can result in decreased shrub cover (Webb and Stielstra, 1979) and desirable shrubs (Orodho et. al., 1990). Weedy exotics, such as split grass (*Schismus arabicus*), checker fiddle neck (*Amsinkia intermedia*), and filaree (*Erodium cicutarium*), and cheatgrass (*Bromus tectorum*) have benefited from grazing, while perennial bunchgrasses, which are highly palatable grazing forage, have become less abundant (Berry and Nicholson, 1984, Kie and Loft, 1990).

The restoration of the desert environment and its vegetation would be a slow process. Complete recovery, if it can happen, would occur at the very minimum over decades. Again, from the 1994 FWS "Biological Opinion":

> After 10 years of cattle exclusion in the Ivanpah Valley, there were no significant differences in annual plant cover, biomass, or density between grazed and ungrazed plots (Avery, et. al., 1992). Volumes of creosote and bursage were greater in the grazed plot as compared to the ungrazed plot, but no differences in total perennial plant cover were detected.

In the above study, differences were also observed in soil compaction, including greater compaction in the grazed area outside of the exclosure. The U.S. Fish and Wildlife Service noted that the above results were complicated by the "limited data on soil and vegetation parameters" before the cattle were excluded and that there had been trespass grazing inside the exclosure. The U.S. Fish and Wildlife Service also stated "Mojave Desert vegetation recovers very slowly from disturbance (Vasek et al. 1975a and 1975b, Lovich 1992) and 10 years may not be long enough to detect differences between grazed and ungrazed plots."

Most woody vegetation would continue to be protected from damage by the ban on firewood collection.

Wildlife. Competition for food, water, and space between bighorn sheep and burros is strongly suspected by many biologists, and overlaps of food and range are known to occur in Mojave National Preserve. Researchers have found dietary overlap between burros and bighorns ranging from 20% to 67% (Douglas and Hurst 1993). Douglas and Hurst cite the following from Norment and Douglas's 1977 paper:

> The desert bighorn and burros live in areas having environmental uncertainty. It seems reasonable to assume desert bighorn are resource limited. Burros may also be resource limited, but because of their generalized food habits, they are less limited by forage resources than bighorn. In deserts of the western states, habitats of both species have continually fluctuating carrying capacities, being highest in spring and lowest in winter. Primary productivity of desert habitats is low, and dependent upon the amount and timing of precipitation. Availability of nutritious forage is thought to be the most limiting resource of these species. Foraging strategies of bighorn sheep have evolved in synchrony with their habitats, whereas feral burros have not evolved with the same resource set.

Studies in 1961 and 1984 showed that the presence of burros at springs has had an inhibiting effect on bighorn ewes; bighorn rams appear to be less intimidated. The findings were: "Ewes generally would not drink if 3 or more burros were present at the spring. Rams drank at the springs burros utilized, but a spring not used by burros received much heavier use by ewes than springs used by burros. Burros have the tendency to lounge in groups at water sources, often remaining there for hours, or even entire days" (Douglas and Hurst 1993). Such inhibiting of bighorns would continue under the no-action alternative.

A 1977 study in Bandelier National Monument found significant differences in small mammal populations (deer, mice) in areas where burros were present. In the monument's pinyon-juniper woodlands a reduction 10-33% of small mammals was found compared to the control areas that were without burros (Guthrie 1977). It is assumed that similar small mammal population declines have occurred within the Mojave National Preserve's pinyon juniper woodlands (constituting about 10% of the preserve) and within other community types that share burro and small mammal populations. Any such declines would continue under the no-action alternative.

The burro population maintenance program (keeping the herd at around 130 burros) would require periodic disturbance of desert wildlife by noise (helicopters, horses, trucks, wranglers, etc.) and inadvertent trampling of small animals and their habitats from capture crews and their equipment during the capture operation. Larger mammals, such as deer and bighorn, would leave the local area during these activities.

The preserve's developed water (wildlife guzzlers and other livestock water developments; mining developments) might be affecting the preserve's wildlife populations. This artificially increased amount of water may be allowing some wildlife populations to grow to levels unobtainable if only available natural water was avaliable. For example, there are no seeps or springs in the Kelso Mountains, yet a large herd of bighorn sheep is thriving, and this is probably due to the big game guzzler at Kelso Mountain. The population growth here and possibly at other locations might be affecting native vegetation. With more animals surviving because developed water is available, these larger populations would need more food. The limited amount of water available for plants, desert plants' slow growth and recovery rates, and the possible increased wildlife populations could have adverse ecological effects, because animals would be eating more than what is being replaced. This situation would continue under the no-action alternative.

Hunting is allowed year-round and there are no limits on the killing of hares (black-tailed jackrabbits) and many nongame animals such as coyotes, skunks, and opossum. The effects on these populations from hunting are unknown.

Desert Tortoise. The 1994 FWS "Biological Opinion" describes the adverse effects burros can have on the desert tortoise. The FWS report says that grazing by burros can damage soil crusts, reduce water infiltration, promote erosion, inhibit nitrogen fixation in desert plants, and provide a favorable seedbed for exotic annual vegetation. The U.S. Fish and Wildlife Service recommended that burros should be prohibited in areas set aside for the desert tortoise's recovery (which it calls "Desert Wildlife Management Areas"). There are two such areas recommended in the preserve, covering about 70% of the preserve and about 50% of the BLM's Clark Mountain Herd Management Area). The U.S. Fish and Wildlife Service also recommends that the hunting season be limited to big game and game birds and be open only from October through February.

Many investigators have observed cattle trampling and destroying desert tortoise burrows. However, little is known of the effects on individual tortoises, and nothing is known of the trampling effects on desert tortoise populations in general. The effects of grazing on the desert tortoise remain unclear.

> A large part of the Mojave Desert is not in pristine condition, and some current conditions can be related to past grazing management practices. No information could be found on densities of the desert tortoise (*Gopherus agassizii*) or on vegetative conditions of areas that had not been grazed to allow managers a comparison of range conditions with data on tortoises. Experimental information to assess the effect of livestock grazing on tortoises is lacking, and researchers have not yet examined whether the forage that remains after grazing is sufficient to meet the nutritional needs of desert tortoises. (Oldemeyer 1994)

Water. Burros are known to contaminate water sources through defecation and urination, overbrowsing or elimination of aquatic and riparian vegetation, and monopolizing the use of springs or seeps. On average, burros consume 22 liters (5 gallons) of water per day. In comparison, bighorn sheep consume about 3.8 liters (1 gallon) per day (Douglas and Hurst 1995).

Cattle ranching and mining in the desert required changes in the natural waterflow and in water quality, and supply. Flows from springs and seeps were diverted or dammed, water was piped miles away from the source, wells were drilled, stock tanks were excavated, and other developments such as windmills and troughs were needed. These changes brought changes to the natural environment. When the flows from springs and seeps were diverted, the remaining aquatic/riparian flora and fauna were greatly reduced or eliminated. Water piped from the springs and seeps, or taken from wells and piped to tanks and troughs, is used by cattle, burros, and wildlife. This situation would continue under the no-action alternative.

The land and vegetation near the troughs and tanks are subject to heavy, concentrated use by cattle and burros. This use compacts the soil and denudes the vegetation near the troughs and tanks. In many parts of the preserve, miles of plastic water pipes (previously buried in shallow trenches and used to provide water for the cattle) that are no longer being used have been exposed and broken and now litter the desert. The effects on the soil and vegetation near the troughs and tanks and at the springs and seeps would continue with the implementation of this alternative.

Of the preserve's 1.6 million acres, almost 15% is private or state lands and mining claims and could be subject to development activities incompatible with the preserve's purposes. Developments such as mining or agriculture would result in the loss of vegetation and wildlife and could affect surface water and night sky. Disturbance of the surface soil could add particulates to the air, adversely affecting the air quality.

IMPACTS ON CULTURAL RESOURCES

Cultural resources are potentially threatened by vandalism and by trampling from burros and cattle. Many prehistoric cultural resources are located near springs, since ancient peoples used springs. Known and undiscovered cultural resources at these areas might be trampled and destroyed by burros. Visitors camping or driving near isolated and unprotected sites would adversely affect cultural resources. Historic or significant structures could be adversely affected by campers' use of wood from historic structures for fires or by other acts of vandalism. Monitoring by rangers would continue to provide limited protection of archeological sites and ruins.

Historic properties listed on, or determined eligible for listing on, the national register would continue to be afforded stabilization/preservation treatment as funding allowed; however, preservation treatment would focus primarily on key resources in high-use areas. Background studies for rehabilitating and adaptive use of historic structures such as the Kelso Depot, would continue to be emphasized to ensure the preservation and interpretation of significant historic properties. The structural frame of the Kelso Depot would be stabilized under current plans, but the building would continue to be at risk to vandalism and deterioration as a result of not being completely restored and occupied.

IMPACTS ON NATIVE AMERICAN INTERESTS

Sporadic communication with affected tribes occurs primarily on a project-specific basis. This approach often leads to misinformed decision-making and distrust because of a lack of information. The presence of sacred and traditional use areas is not fully identified or understood and therefore might be inadvertently harmed.

The information center in Needles would continue to provide an opportunity to raise public understanding and appreciation of tribal ties to the Mojave Desert and to foster relationships with the tribes.

IMPACTS ON VISITOR USE, SERVICES, AND FACILITIES

Drivers often travel over many of the paved roads in the preserve at more than 70 mph. More vehicles on the roads, combined with fast speeds, would increase the chances for traffic accidents. Accidents with vehicles hitting burros or cows occur frequently . About 10-30 cows (Clay Overson pers. comm. 1997) and about 20 burros died by being struck by vehicles in the preserve. Often, the people in the vehicle are also injured. The number of accidents would probably remain the same under the no-action alternative. The 1997 accident figures occurred when the burro population was over 1,300 animals. The numbers of burro/vehicle accidents probably would be reduced and remain stable as the preserve approached the herd size of 130 that would be implemented under this alternative.

Visitor access to the Mojave Road would continue to be unlimited. If road use increased, an adverse effect of excess wear and tear on the surface could result. Increased vehicle use would also lead to crowded roadside camping areas, excess dust, and less enjoyment of feelings of isolation, changing the quality of the visitor experience. The road's surface conditions would continue to deteriorate without NPS maintenance or volunteer efforts. Road shoulders and adjacent vegetation would be adversely affected if people drove off the roadway to avoid rough spots.

The desert tortoise's recovery would not be accelerated under this alternative. Therefore, fewer opportunities for seeing the tortoise might diminish visitors' enjoyment.

The public has limited access to historic properties at Soda Springs with the existing interim management agreement between California State University and the National Park Service.

Most visitors would continue to arrive without receiving advance information. The information panels to be installed near the proposed entrance signs, the information centers at Baker, Needles, and Hole-in-the-Wall would continue to provide travelers with specific information, but they would reach a fraction of the visitors. A 1997 visitor study indicated that 46% of all visitors to the preserve were visiting for the first time. This situation would continue to leave a large percentage of visitors with a limited amount of travel or interpretive information. There would continue to be a high potential for problems related to uninformed visitors.

If campground use dramatically increased there could be some negative impacts on campers who could not get into full campgrounds. These people might leave the preserve or try to find a roadside camping site close to the developed campgrounds. Visitors with disabilities would be adversely affected at the Mid Hills campground because of the low number of accessible trails and campsites. Equestrian use at the Hole-in-the-Wall group area would be adversely affected because there would be no piped water at the corrals.

Cattle and ranching activities, guzzlers and stock tanks, and hunting and trapping would influence visitors' enjoyment and perception of aesthetics in an otherwise natural setting of a unit of the national park system. Visitors would experience private development activities such as mining, house building, and potentially hotels and other visitor service facilities that could be in conflict with the preserve's purpose. The National Park Service does not regulate development on private lands except for mining on patented claims and landfills on all lands; therefore, it would have to try to protect the preserve's resources through the state and county permitting authority. With almost 15% of the preserve containing nonfederal lands or interests, trespass complaints could occur, along with a possible increase in fencing and "no trespassing" signs. At the same time, there is some concern that visitors would not understand the fencing of public lands for grazing and therefore would feel unwelcome to use certain public fenced lands.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

A separate analysis of socioeconomic conditions in the planning area and the effects of the proposed action was conducted by Dean Runyan Associates under contract to the National Park Service. Refer to that report for details on the existing conditions.

IMPACTS ON ADMINISTRATIVE OPERATIONS AND FACILITIES

Maintaining a herd size at 130 burros would be the most expensive alternative over the long term. BLM personnel estimate the cost for capturing, transporting, adoption preparation (veterinarian care, feed and board), and adoption is $1,200 per animal (Dave Sjaastad, BLM, pers. comm. 1997). The cost of reducing the existing herd down to the herd management level of 130 from the estimated population (May 1997) of at least 1,300 burros would be about $1.9 million. If the burro population's growth rate (estimated between 10-20%) is assumed to be 15%, an average of 20 burros would have to be removed each year, costing about $24,000 per year, not counting staff time in order to maintain a population of 130 animals. Under this alternative, these costs would continue for the long term.

The grazing fees collected under this alternative would not be sufficient to manage a grazing management program. Additional funding would be needed for staff time and program costs associated with the grazing program.

Implementing the desert tortoise recovery program would entail some initially high administration costs, but the costs should diminish as recovery proceeded. Administering wilderness access and guzzler maintenance would result in high administrative review, permitting, and monitoring costs. Authorized vehicles would continue to be allowed access into wilderness. Year-round hunting would result in minor increases in workloads and costs for law enforcement activities.

Campground maintenance and fee collection would continue with existing staff and volunteers. NPS housing at Baker would continue to be below current NPS standards because of the use of trailers and the lack of other housing alternatives in town. NPS housing at Hole-in-the-Wall would continue to be inadequate for staff use. The Hole-in-the-Wall contact center provides little privacy and would not be adequate for the staff needed to operate the facility. Firefighting staffing levels may increase. The dormitory housing at Hole-in-the-Wall is already at capacity. Any increase would place the fire crew in overcrowded conditions. The garage for the fire truck would continue to be too small to properly park the truck and hold and protect support equipment. The headquarters building is out of compliance with federal regulations concerning access for persons with disabilities.

NPS staffing levels would not increase as a result of this alternative. However, in most instances workloads would increase, limiting the National Park Service's ability to serve the public and protect the resources.

IMPACTS ON EDUCATION AND RESEARCH CENTERS

Cattle grazing, feral burros, and visitation could disrupt or destroy research plots. Depending on the time and cost of these plots the impacts could be significant; however, no evidence of damage has been seen to date.

Long-term field research projects could be adversely affected by visitor recreation activities. The public is generally unaware of the reserve's research and education function, so that conflicts could develop between the public and researchers, teachers, and students who use the Granite Mountains Natural Reserve.

There is minimal conflict between the public and education and research within the preserve because of low visitation to Soda Springs Desert Studies Center and the Granite Mountains Natural Reserve. Some visitors to Soda Springs might continue to stray from the interpretive trail because of limited information placed along the trail and their interest in historic buildings. To mitigate such effects, more interpretive information could be placed in front of the historic buildings to interpret their past and explain their current functions.

IMPACTS ON LAND OWNERSHIP AND USE

Free-roaming burros and cattle in Mojave National Preserve would continue to present some resource use conflicts. Burros would use forage and water on unfenced private and state lands within the preserve resulting in increase expenses for ranchers to run and maintain gas-driven pumps to fill stock tanks with well water. The significance of these impacts is unknown.

There is potential for increased visitation in the preserve. Installing six information panels near the proposed entrance signs would provide limited information about the preserve. The signs could be a reminder for visitors to respect private property and possibly reduce some conflicts between the public and private landowners.

Unoccupied public and private structures could be subject to theft and vandalism.

No negative impacts to landowners would be anticipated from construction in the preserve on federally owned land or on leased private land.

Mitigation for proposed mineral development proposals do not meet the regulatory approval standards for the Preserve, the NPS would seek to acquire the property or interest. Depending on the mineral commodity and value of the property, this could result in a substantial expense. It would also prevent the removal and use of that mineral. The significance of this cannot be determined until a specific mining proposal actually is denied

CUMULATIVE IMPACTS

The effects of burros and cattle on soils, water, flora, and fauna would significant and cumulative. Restoring native landscape to its original condition would be inhibited. Implementation of this alternative would not contribute positively to the population-wide recovery of the desert tortoise. Unlimited hunting seasons and bag limits on some species might adversely affect those populations.

The cumulative impacts of the no-action alternative on archeological sites, ethnographic resources, and historic properties are difficult to analyze because there has been no long term monitoring program. Development near archeological sites would increase the likelihood of eventual inadvertent damage to the sites, resulting in a slow deterioration of resources over time. Even controlled excavation of sites would damage them because current methods, technologies, and research emphases cannot anticipate the needs of future researchers. Therefore, data recovery is usually regarded as only a last-resort option to preservation in place.

It is presumed that the significance and integrity of ethnographic sites would be diminished by increasing visitation because such sites become less suitable for ethnographic uses as more people congregate near them. Piecemeal inventory, evaluation, interpretation, and preservation of archeological sites, ethnographic resources, and historic properties and cultural landscapes would not enable the National Park Service to manage cultural resources in the preserve in a manner consistent with the requirements of the National Historic Preservation Act or the National Park Service's *Cultural Resource Management Guideline.*

The development of private and state lands in the preserve would contribute to the overall loss of desert resources and habitat for native species. Potential road closures by landowners irritated by trespass and vandalism could reduce overall public access even further (beyond the closure of roads in wilderness areas designated by the CDPA, and potential route closures for protection of sensitive species and habitat).

Denial of mining proposals that do not meet NPS regulatory approval standards would contribute minimally to the existing situation where large expanses of the desert are no longer available for mineral entry, and therefore, development opportunities are restricted.

ALTERNATIVE 3: OPTIONAL ALTERNATIVE

IMPACTS ON NATURAL ENVIRONMENT

Impacts under alternative 3 would be the same as those of the no-action alternative except that grazing would be restricted and possibly phased out or restricted if research demonstrates the need. Over time, limiting or reducing grazing might allow the soils, water, vegetation, and wildlife to be restored.

Limiting the use of guns to the September through February hunting seasons (when desert tortoises are mostly inactive) would result in fewer tortoises being killed by vandals.

Limiting vehicle use on the Mojave Road would protect the current visitor experience and resource values.

Minor impacts on vegetation and wildlife would result from the construction of the following proposed projects:

- new housing in the preserve and in Baker
- information center and comfort station at Kelso
- visitor information center at Soda Springs
- nature center at Hole-in-the-Wall
- roadside pullouts for interpretive panels
- restrooms, picnic tables, and fire rings at isolated camping areas

Each of these projects would involve not more than 3 acres of disturbance. Using previously disturbed land would limit negative impacts in all locations.

Establishing designated camping areas at remote locations would reduce the expanding surface disturbance associated with continued use. In the long term these facilities could decrease negative impacts from visitor use by confining impacts to specific campsites and reducing the potential for human waste in the landscape (U.S. Forest Service 1987). If tables were anchored to the ground, the spread of ground disturbance would be reduced even further. This would help reduce the potential for visitor disturbance of desert tortoises when the animals were active above ground, which would help the efforts of the desert tortoise recovery plan. However, it would not deter impacts on burrows and habitat the rest of the year.

The presence of more staffed visitor centers would provide more opportunities for NPS staff to educate the public about protecting natural resources. This could result in fewer negative impacts on natural resources than under the proposed action.

IMPACTS ON CULTURAL RESOURCES

Restricting hunting seasons would allow more control of the illegal use of weapons in the nonhunting season, enhancing the cultural resource protection of cultural resources. Restricting roadside camping locations would result in greater protection and less disturbance of existing archeological sites and sensitive cultural sites.

IMPACTS ON NATIVE AMERICAN INTERESTS

There would be a lower potential for impacts on sacred sites if campers were only allowed to camp at designated roadside campsites.

IMPACTS ON VISITOR USE, SERVICES, AND FACILITIES

Restricting hunting to the September through February designated CDF&G seasons for upland game and big game would adversely affect nongame hunters; however, shortening the season when guns were allowed would increase visitor safety.

Restricting camping in desert tortoise critical habitat during periods when the animals were active above ground would adversely affect visitors who might want to camp in those areas at that time. Those affected would be a minority of the preserve's visitors. Alternate camping sites are available within the preserve.

Adding a Hole-in-the-Wall nature center and an information center at Kelso could create more opportunities for visitors to understand the preserve's cultural and natural resources. More interpretation would be available to visitors at the developed campgrounds. The nature center might offer additional activities for children staying at the developed campgrounds and provide a base for outdoor education classes. Adding more structures at Kelso could be visually distracting from the depot.

Visitation and traffic levels would increase because of the improvements at Kelso Depot, Soda Springs, and Hole-in-the-Wall. To mitigate adverse effects on the road surface and control dust, it might be necessary to gravel or otherwise improve the surface of the Zzyzx Road and other unpaved roads.

Increasing National Park Service use of Soda Springs facilities for outreach classes and events could adversely affect California State University operations.

Adding a group camp area at Mid Hills would give groups a cooler summer alternative to the Hole-in-the-Wall group area, which normally receives minimal summer use because of its hotter temperatures. Constructing hiking and interpretive trails to connect the campgrounds would increase recreational opportunities for visitors who preferred hiking on established trails. Visitors with disabilities would also benefit from the Mid Hills campground improvements.

Backcountry campsite improvements would increase the spectrum of camping opportunities in the preserve. Some people might prefer to camp at these locations, which would have fewer people and more solitude than the developed campgrounds. This action could also reduce demand on the developed campgrounds. Adding improvements to backcountry campsites would adversely affect people who have been camping in these areas for years and would not want changes made to their favorite sites. Campers in high-use camping areas would benefit from the installation of improvements such as campfire rings and picnic tables.

Limiting vehicle use on the Mojave Road would mean that some visitors might be able to use the road when they wished to. The positive effect would be that the quality of the visitor experience and camping along the road would continue to be good. Large groups might be restricted from using the Mojave Road on certain dates, but they would be able to choose any previously disturbed campsite they want (based on availability). Some groups may be denied access to a section or all of the road if other large groups were using it on the same day. This would adversely affect groups that would not be able to travel when they wanted to, but it would overt problems with traffic congestion on this narrow road.

IMPACTS ON THE SOCIOECONOMIC ENVIRONMENT

A separate analysis of socioeconomic conditions in the planning area and the effects of the proposed action was conducted by Dean Runyan Associates under contract to the National Park Service. Refer to that report for details.

IMPACTS ON ADMINISTRATIVE OPERATIONS AND FACILITIES

Implementing this alternative would necessitate more NPS staff to operate new information centers at park headquarters, and Soda Springs and the Hole-in-the-Wall nature center. The availability of more information on recreational opportunities might increase visitation to features such as the Kelso Dunes, creating a ripple effect in needed administrative support for these areas. Increasing the number of NPS ranger tours and programs would also increase the administrative and operational workload for the National Park Service.

Expanding campgrounds, improving designated backcountry sites, and adding interpretive trails would create an additional staff workload. Construction would create a short-term increase in workloads, but additional campsites and camping areas would increase the daily work for years into the future. The additional improvements to backcountry sites would increase the distances the staff would be required to travel to maintain camping facilities.

Monitoring and enforcing the Mojave Road's vehicle capacity would require additional staff time and effort. This might eventually lead to a reservation or permit system, which could be used to control the number of vehicles on the road. This would be a negative impact on the administrative workload. Some work might be performed by private sector contractors. Using volunteers would reduce NPS efforts in road maintenance and care of roadside campsites.

Existing staff office space on the east side of the preserve could result in a field office in a community with adequate community services. This would place more employees on the eastern edge of the preserve to better serve the public and Native American tribes. The distance between this office and headquarters would be an adverse effect on daily operations and communications between these two offices.

Removing land parcels with existing commercial services at freeway overpasses from the preserve boundary, would eliminate the need for NPS employees to issue permits and monitor them for compliance.

IMPACTS ON EDUCATION AND RESEARCH CENTERS

A shorter hunting season would increase the safety of researchers, students, and teachers.

Adding an information center at Soda Springs (designed for a non-staffed operation) and NPS guided tours would increase visitation, creating potential conflicts between CSU and the public. Ranger-guided tours and interpretive displays and programs at the information center would provide information about scientific desert research.

The partnership between the National Park Service and the University of California to collaborate on research, interpretation, and public education would increase public awareness and understanding of natural and cultural resources.

IMPACTS ON LAND OWNERSHIP AND USE

A shorter hunting season would result in less trespassing and fewer hunting accidents. New information centers at Hole-in-the-Wall and Soda Springs would serve to dispense information on the need to respect private property.

Impacts on mineral development would be similar to the existing management alternative, except that increased acquisition of mineral rights would occur as a result of the sensitive resource analysis and the identification of areas where mineral development would be incompatible with the preserve mission. This increase is not quantifiable at this time, however a separate impact analysis would be performed at the time the sensitive resource analysis occurs.

CUMULATIVE IMPACTS

If restrictions on grazing were imposed, the desert vegetation, soils, waters, and wildlife would eventually be restored to pre-impact levels in those specific areas.

Lack of long-range cultural resource planning, except as critical needs arise, could lead to intermittent and reactive management actions in the preserve. The lack of an integrated approach to cultural resource management could result in the deterioration of some resources.

OTHER COMPLIANCE REQUIREMENTS

The following is a list of mandatory topics that must be covered in a NPS environmental impact statement. Where relevant, additional information on these topics is covered in the proposed action and alternatives section of this draft document.

Possible conflicts between the proposed action and land use plans, policies, or controls for the area concerned (including local, state, or Indian tribe) and the extent to which your park will reconcile the conflict

The proposed actions would be in conflict with the current code of regulations of the California Department of Fish and Game. The National Park Service will consult with California Department of Fish and Game and encourage that agency to publish new regulations that reflect the changes once they are approved. No other conflicts are identified.

Energy requirements and conservation potential

Energy conservation is a major design factor in any construction activity proposed in this document.

Natural or depletable resource requirements and conservation potential

The actions proposed in this draft document promote the conservation of the preserve's resources and the enjoyment of these resources by the public.

Urban quality, historic and cultural resources, and design of the built environment

Before the anticipated work on the Kelso Depot and the preserve's other historic structures can begin, the resources will be evaluated for their historical significance following historic preservation laws. This evaluation will be used in guiding the design for any future construction work.

Environmental justice (EO 12898) (socially or economically disadvantaged populations)

Any socially or economically disadvantaged population within the preserve would not be adversely impacted by any of the alternatives presented in this document.

Wetlands and floodplains

Before any construction work begins in Kelso Depot, Mid Hills Campground, or near the Hole-in-the-Wall area, a floodplain report will be prepared. Preliminary work for the floodplain report began in March 1998. Spring (wetlands) restoration is part of the proposed action. The proposed action recommends the elimination of hunting and trapping near wetland areas.

Prime and unique agricultural lands

There are no known extant agricultural lands within the preserve.

Endangered or threatened plants and animals and their habitats.

The preserve's sensitive species, including federally listed and state-listed endangered or threatened species have been identified. Specific actions are proposed to promote the recovery of the desert tortoise and the Mohave tui chub. Other sensitive species would not be adversely impacted by the proposed action.

Important scientific, archeological and other cultural resources, including historic properties listed on or eligible for listing on the National Register of Historic Places

The preserve is fortunate to have two academic field stations within the preserve. Significant archeological and cultural resources and a number of historic properties that are eligible for the National Register of Historic Places are also present within the preserve. These features are described in the "Affected Environment," "Alternatives," and "Environmental consequences" chapters of this document.

Ecologically critical areas, wild and scenic rivers, or other unique natural resources

Ecologically critical areas in the preserve are desert tortoise designated critical habitat, Mohave tui chub ponds, and numerous unusual plant assemblages. These features would be protected through the proposed action of this document.

Mojave National Preserve carries out the NPS responsibilities for the national natural landmark (NNL) program associated with five areas: Cinder Cone Natural Area NNL, Mitchell Caverns and Winding Stair NNL, Amboy Crater NNL, Rainbow Basin NNL, and Turtle Mountain NNL. Each of these designated areas is a nationally significant natural resource warranting the highest level of protection and preservation from degradation of the characteristics that qualified it for designation as a national natural landmark. The National Natural Landmark program activities include annual inspection and reporting on the condition of the landmarks or threats to them and developing and maintaining partnerships with federal, state or other owners of the national natural landmark to promote their continued preservation and protection. Cinder Cone and Mitchell Caverns are within the preserve's boundaries; the former is managed by the preserve and the latter is managed by the California State Parks. Amboy Crater, Rainbow Basin, and Turtle Mountain are administered by the Bureau of Land Management.

Public health and safety

Public health and safety issues are addressed in this document. To promote public safety, the proposed action calls for additional public access to information regarding public health and safety and for restricting the hunting seasons, the number of species hunted, and the locations where they can be hunted.

Sacred sites / Indian trust resources

Sacred sites and Indian trust resources will be identified and agreements reached on the protection of these sites and resources in future consultations with the affected tribes.

SUSTAINABLE AND LONG-TERM MANAGEMENT

The National Park Service has a responsibility to sustain the land within its jurisdictional boundaries as a thriving ecosystem while preserving cultural resources and sustaining the quality of the human experiences that can be had on the land. Ecosystems do not recognize political boundaries; this fact may require the National Park Service to act upon external influences that could influence elements within the political boundary. The National Park Service is challenged to support the economic viability of the communities within and surrounding the national preserve while achieving environmental and cultural resource protection. The concept of sustainability recognizes that our world is dynamic, that change will continue to occur, and that the interrelationship between human beings and the environment must be considered in making decisions. Sustainability is a continual process, a way of thinking about now and the future, not a static set of characteristics that may be defined.

The National Park Service will apply the principles of sustainability to the management of all applicable aspects of this unit of the national park system from interpretation to development and management of facilities. Guiding principles include the efficient use of local resources such as water, energy, and materials to reduce waste, environmental impacts and management costs, and sustaining the quality of the visitor experience and life for local residents by maintaining scenic beauty, environmental quality, and visual harmony within the built environment and its surroundings. The National Park Service would also work with local communities to encourage economic activities that protect and improve the quality of the environment.

The relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity

Over the short term the implementation of the proposal would disrupt visitor services, some historic features, and a small part of the natural environment during construction and the roundup, moving, and adoption of burros. Over the long term, the proposed action would result in the elimination of burros, reductions in cattle grazing, and restoration of natural vegetation and water. To a slightly lesser extent, the optional alternative would allow the natural habitat to recover. Over the long term, the no-action alternative would not provide for the natural habitat's recovery.

Any irreversible or irretrievable commitments of resources

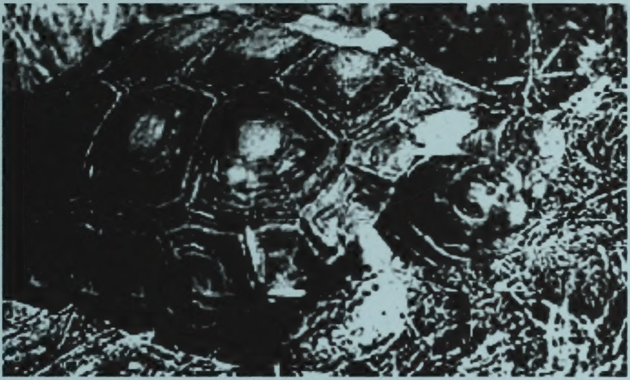
Construction activities under the proposed action would have irreversible and irretrievable impacts. The construction of the various visitor and information centers, campgrounds, and the Kelso Depot, would not exceed 3 to 25 acres of habitat (0 acres of critical habitat) within the Mojave National Preserve. There would be no construction impacts under the no action alternative and optional alternative impacts would be slightly larger (from 3–50 acres) than the proposed action. For all alternatives, any mining activity within the preserve would permanently damage the natural environment. The extent of the damage would be mitigated, but some damage would still be present.

Future facility planning and management would also be directed by the National Park Service's *Guiding Principles for Sustainable Design* published in 1993 by the Government Printing Office. Sustainable actions could include reducing waste and water and energy consumption and improving or maintaining the quality of human experiences while reducing or eliminating impacts to the natural environment. Facilities must relate to the qualities of the surrounding landscape, local or regional architectural themes, providing a special sense of place. Continued operation of facilities would also be managed under sustainable principles such as high visitor satisfaction, easier maintenance, lowering operational costs, reducing waste, and reducing water and energy consumption.

Any adverse impacts that cannot be avoided should the action be implemented

Between 3 and 50 acres of land in the preserve would be lost to developments for visitor and maintenance use. If mining proceeded, those impacts would also be unavoidable. Hunting and trapping opportunities within the preserve would be diminished with the selection of the proposed action or the optional alternative.

CONSULTATION AND COORDINATION



PUBLIC INVOLVEMENT

Throughout the planning process, the planning team gathered public input on issues, proposed actions, and alternatives. The scoping process included meetings, public workshops, Advisory Commission meetings, newsletters, and the development of a homepage. These were used to identify the issues, alternatives, and impact topics to be considered for planning and to keep the public informed and involved throughout the planning process.

PUBLIC NOTICES AND WORKSHOPS

On August 31, 1995, a public notice describing the purpose of the planning effort was sent to the public, media, agencies, and other organizations on the Bureau of Land Management California Desert District's mailing list. The schedule for the first round of public meetings was included in the notice. On September 5, 1995, a notice of intent announcing the beginning of the planning process and EIS was published in the *Federal Register*.

Public workshops were held from September 21 through 27, 1995 at 10 locations throughout the planning area and in nearby areas where users live. These workshops were held in Pasadena, San Bernardino, Barstow, Baker, Needles, Ridgecrest, Independence, Lone Pine, and Furnace Creek, California, and in Las Vegas, Nevada. About 250 people attended the workshops. These workshops were used to identify issues and concerns that the team should address in preparing a management plan for the area. The team and other agency staff divided into two groups to cover the 10 locations in one week. Detailed notes taken during the workshops were summarized and placed in a notebook for the team's reference.

In late February 1997, a second notice was sent out to inform the public that there would be a second round of workshops in April. A press release was mailed to local media in and near the planning area. Some local newspapers and radio stations informed the public about the workshops. The schedule for these workshops was included in this notice and on the NEMO homepage.

Ten public workshops were held from April 14 through 24, 1997 at Las Vegas, Nevada, Needles, Furnace Creek, Bishop, Lone Pine, Barstow, Pasadena, San Bernardino, Baker, and Ridgecrest, California. Each workshop began with a 20-minute presentation about the planning effort given by NEMO team leader Dennis Schramm. After the presentation the team would set up three stations for natural resources, cultural resources, land use, and visitor experience. At these stations, the team gathered comments and alternatives and wrote them down on the flipcharts. About 330 people attended the workshops.

NEWSLETTERS AND HOMEPAGE

The first newsletter in February 1996 was sent to about 6,000 names on the Bureau of Land Management mailing list for the California desert. It included a summary of planning issues identified at the public meetings and statements of purpose and significance for Death Valley National Park, Mojave National Preserve, and BLM-managed lands within the planning area.

The original mailing list was replaced with a planning project mailing list developed from agency lists and scoping participation. A second newsletter was sent to about 500 names on the NEMO planning mailing list in March 1997. It contained a planning update, the schedule of the workshops, general descriptions of conceptual alternatives, and an outline of issues for which alternatives could be developed. The newsletter was also posted on the homepage. Both newsletters included a one-page mailback for receiving comments.

In February 1997, a homepage for the three California desert planning efforts (West Mojave, Northern and Eastern Colorado, and Northern and Eastern Mojave) went online on the BLM California server. It contained detailed information about each planning effort, background information about the Mojave Desert, and the desert tortoise, pertinent legislation and maps and photographs. In April 1998 the NEMO homepage was moved to the NPS server so that the planning team would have direct access. The link to this homepage is found in Mojave National Preserve's homepage (www.nps.gov/moja/planning/nemo.htm).

A third newsletter was sent out to the public in April 1998 to update readers on the NEMO planning effort. The newsletter explained that three separate draft environmental impact statements for each area (Mojave National Preserve, Death Valley National Park, and the BLM public lands within NEMO) would be produced instead of one comprehensive draft environmental impact statement. A revised planning schedule and comment form for receiving the documents were also provided in the newsletter.

AGENCY CONSULTATION

An interagency meeting was held on August 23, 1995, to discuss the issues to be addressed in this planning effort. The meeting was attended by 43 staff from the National Park Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service.

The California state historic preservation officer (SHPO) was formally notified by letter in April 1996 of the planning effort. A response letter offering suggestions was received from the state historic preservation officer in May 1996. A planning team member met briefly with the state historic preservation officer in June 1996 and offered a briefing on the planning effort. No date for the briefing was confirmed.

Following the public scoping workshops in April 1997, a two-day interagency meeting was held in Barstow, California to discuss the alternatives and comments heard at the workshops. Twenty-eight staff members from the National Park Service, the Bureau of Land Management, the U.S. Fish and Wildlife Service, the California State Parks, and San Bernardino County attended the two-day meeting. Comments were gathered on the first day and alternatives were developed on the second day.

An interagency meeting was held on April 10, 1997 to discuss listed and sensitive species in the planning area. It was decided that the team would plan for listed and sensitive species based on habitat types. A follow-up meeting was held on June 11, 1997, to continue the discussion. Habitat types were ranked according to priority, and tasks were assigned to staff members to gather information needed to map the habitats with the highest priority.

On November 12, 1997, the planning team met with preserve staff to discuss alternatives to be included in the agency review draft. The following day, the planning team met with Death Valley staff to discuss alternatives for Death Valley.

Copies of the first internal agency combined draft were provided to the Environmental Protection Agency in San Francisco. Copies of the separate draft plans for each park unit were offered for review, but the Environmental Protection Agency declined, opting instead to review and comment on the public drafts when they are released.

NATIVE AMERICAN CONSULTATION

On March 7, 1996, Team Leader Dennis Schramm, Death Valley National Park Superintendent Dick Martin, and Cultural Resources Specialist Linda Greene met with representatives of the Timbisha Shoshone tribe at Death Valley. A follow up meeting with tribal leaders held at their offices in Death Valley on April 28, 1997. On April 23, 1996, Dennis Schramm and Archeologist Rolla Queen met with the Chairmen and tribal members of the Chemehuevi tribe at their reservation on the Colorado River. A follow up meeting was held with the Chemehuevi on May 19, 1997 at their office. An initial meeting with the Ft. Mohave Indian Tribe Chairperson also was held on May 19, 1997 at their offices in Needles. The purpose of these meetings was to initiate government-to-government relationships for the planning effort. The tribes were briefed on the scope and status of the planning effort and discussed issues.

INTERTRIBAL MEETING

An intertribal meeting of the Fort Mohave, Timbisha Shoshone, Chemehuevi, and San Manuel tribes was held on July 11, 1997 at the Fort Mohave Reservation's Avi Hotel and Casino in the Laughlin, NV area. The purpose of the meeting was to discuss Native American issues and alternatives. Invitation letters were sent to 13 tribal offices and to NPS and BLM staff. Seven representatives for the tribes and nine agency staff attended the meeting. Mr. William "Bill" Mungary (an intertribal leader) facilitated the meeting.

The meeting began with an introduction and greeting by Mr. Mungary followed by an overview of the planning effort by Team Leader Dennis Schramm. Then at their request, the tribes met for an hour and a half without the presence of the agencies. This was then followed by a three-hour discussion between the tribes and agencies which was focused on protection of cultural sites and access to these sites. The tribal representatives also addressed how they would want further consultation to be handled.

MOJAVE NATIONAL PRESERVE ADVISORY COMMISSION

As mandated by the California Desert Protection Act, an advisory commission for Mojave National Preserve was appointed by the Secretary of the Department of Interior. The commission was appointed in April 1996. The role of the commission is to advise the planning team through the planning process.

The commission held its first meeting in the preserve on June 12 and 13, 1996. On the first day, the commission visited Kelso Depot then discussed the status of the historic resources report being prepared by the NPS Denver Service Center. The next day included a discussion of administrative procedures for Advisory Commissions and the approved commission charter, an overview of the Federal Advisory Commission Act and a review of the planning objectives, status and issues.

The commission met again at the Hole-in-the-Wall Ranger Station on September 11 and 12, 1996. On the first day, speakers presented information on burros. This was followed by public input and discussion of alternatives by the commission. Day two involved a 4WD tour of 20 miles of the Mojave Road. During the tour, Dennis Casebier, a commission member, provided a history of the road through use of park radios. Afterwards, the commission visited Zzyzx and discussed management options.

On March 10 and 11, 1997, the commission met in Laughlin, NV. Mojave National Preserve Superintendent Mary Martin gave an update on the preserve's status and NEMO Team Leader Dennis Schramm gave an update on NEMO's status. Ross Haley, an NPS Wildlife Biologist, presented information on burro census which was then followed by a comment period. On the second day, Dennis Schramm explained the process of general management plan alternatives development. A Wilderness sub-group was also formed.

The commission met again July 19, 1997 at the Hole-in-the-Wall ranger station. This time the public was also invited. The main discussion issues were grazing, the desert tortoise, and gateway communities.

On October 9 and 10, 1997, the commission met at Nipton to discuss desert tortoise issues. Speakers included representatives from Fish and Wildlife Service, Bureau of Land Management California Desert District, as well as consultants and researchers.

On February 19, 1998, the planning team provided an overview of natural resources alternatives to the Commission. A follow up meeting was held on March 23, 1998 in Baker to finish the overview of the general management plan.

LIST OF INVITED COOPERATING AGENCIES

FEDERAL:

Bureau of Indian Affairs*
Ft. Irwin Army National Training Center*
China Lake Naval Weapons Center
Army Corp of Engineers
Environmental Protection Agency
Inyo National Forest

STATE:

California Department of Fish and Game
California State Parks
California Department of Transportation*
State Lands Commission
California State Historic Preservation Office*
Nevada State Historic Preservation Office

LOCAL:

San Bernardino County, CA*
Inyo County, CA*
Mono County, CA
Clark County, NV*
Nye County, NV
Esmeralda County, NV

NATIVE AMERICAN:

Timbisha Shoshone Tribal Council*
Fort Mojave Tribal Council
Chemehuevi Tribal Council

*provided planning contact

APPENDIXES

APPENDIX A: 1994 CALIFORNIA DESERT PROTECTION ACT (PUBLIC LAW 103-433)

(Sections Relevant to Mojave National Preserve)

One Hundred Third Congress

of the

United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday,
the twenty-fifth day of January, one thousand nine hundred and ninety-four

An Act

To designate certain lands in the California Desert as wilderness, to establish the Death Valley and Joshua Tree National Parks, to establish the Mojave National Preserve, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

Sections 1 and 2, and titles I through IX of this Act may be cited as the "California Desert Protection Act of 1994".

SEC. 2. FINDINGS AND POLICY.

(a) The Congress finds and declares that--

(1) the federally owned desert lands of southern California constitute a public wildland resource of extraordinary and inestimable value for this and future generations;

(2) these desert wildlands display unique scenic, historical, archeological, environmental, ecological, wildlife, cultural, scientific, educational, and recreational values used and enjoyed by millions of Americans for hiking and camping, scientific study and scenic appreciation;

(3) the public land resources of the California desert now face and are increasingly threatened by adverse pressures which would impair, dilute, and destroy their public and natural values;

(4) the California desert, embracing wilderness lands, units of the National Park System, other Federal lands, State parks and other State lands, and private lands, constitutes a cohesive unit posing unique and difficult resource protection and management challenges;

(5) through designation of national monuments by Presidential

proclamation, through enactment of general public land statutes (including section 601 of the Federal Land Policy and Management Act of 1976, 90 Stat. 2743, 43 U.S.C. 1701 et seq.) and through interim administrative actions, the Federal Government has begun the process of appropriately providing for protection of the significant resources of the public lands in the California desert; and

(6) statutory land unit designations are needed to afford the full protection which the resources and public land values of the California desert merit.

(b) In order to secure for the American people of this and future generations an enduring heritage of wilderness, national parks, and public land values in the California desert, it is hereby declared to be the policy of the Congress that--

(1) appropriate public lands in the California desert shall be included within the National Park System and the National Wilderness Preservation System, in order to--

(A) preserve unrivaled scenic, geologic, and wildlife values associated with these unique natural landscapes;

(B) perpetuate in their natural state significant and diverse ecosystems of the California desert;

(C) protect and preserve historical and cultural values of the California desert associated with ancient Indian cultures, patterns of western exploration and settlement, and sites exemplifying the mining, ranching and railroading history of the Old West;

(D) provide opportunities for compatible outdoor public recreation, protect and interpret ecological and geological features and historic, paleontological, and archeological sites, maintain wilderness resource values, and promote public understanding and appreciation of the California desert; and

(E) retain and enhance opportunities for scientific research in undisturbed ecosystems.

TITLE V--MOJAVE NATIONAL PRESERVE

SEC. 501. FINDINGS.

The Congress hereby finds that--

(1) Death Valley and Joshua Tree National Parks, as established by this Act, protect unique and superlative desert resources, but do not embrace the particular ecosystems and transitional desert type found in the Mojave Desert area lying between them on public lands now afforded only impermanent administrative designation as a national scenic area;

(2) the Mojave Desert area possesses outstanding natural, cultural, historical, and recreational values meriting statutory designation and recognition as a unit of the National Park System;

(3) the Mojave Desert area should be afforded full recognition and statutory protection as a national preserve;

(4) the wilderness within the Mojave Desert should receive maximum statutory protection by designation pursuant to the Wilderness Act; and

(5) the Mojave Desert area provides an outstanding opportunity to develop services, programs, accommodations and facilities to ensure the use and enjoyment of the area by individuals with disabilities, consistent with section 504 of the Rehabilitation Act of 1973, Public Law 101-336, the Americans With Disabilities Act of 1990 (42 U.S.C. 12101), and other appropriate laws and regulations.

SEC. 502. ESTABLISHMENT OF THE MOJAVE NATIONAL PRESERVE.

There is hereby established the Mojave National Preserve, comprising approximately one million four hundred nineteen thousand eight hundred acres, as generally depicted on a map entitled "Mojave National Park Boundary—Proposed", dated May 17, 1994, which shall be on file and available for inspection in the appropriate offices of the Director of the National Park Service, Department of the Interior.

SEC. 503. TRANSFER OF LANDS.

Upon enactment of this title, the Secretary shall transfer the lands under the jurisdiction of the Bureau of Land Management depicted on the maps described in section 502 of this title, without consideration, to the administrative jurisdiction of the Director of the National Park Service. The boundaries of the public lands shall be adjusted accordingly.

SEC. 504. MAPS AND LEGAL DESCRIPTION.

Within six months after the date of enactment of this title, the Secretary shall file maps and a legal description of the preserve designated under this title with the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives. Such maps and legal description shall have the same force and effect as if included in this title, except that the Secretary may correct clerical and typographical errors in such legal description and in the maps referred to in section 502. The maps and legal description shall be on file and available for public inspection in the appropriate offices of the National Park Service, Department of the Interior.

SEC. 505. ABOLISHMENT OF SCENIC AREA.

The East Mojave National Scenic Area, designated on January 13, 1981 (46 FR 3994), and modified on August 9, 1983 (48 FR 36210), is hereby abolished.

SEC. 506. ADMINISTRATION OF LANDS.

(a) The Secretary shall administer the preserve in accordance with this title and with the provisions of law generally applicable to units of the

National Park System, including the Act entitled "An Act to establish a National Park Service, and for other purposes", approved August 25, 1916 (39 Stat. 535; 16 U.S.C. 1, 2-4).

(b) The Secretary shall permit hunting, fishing, and trapping on lands and waters within the preserve designated by this Act in accordance with applicable Federal and State laws except that the Secretary may designate areas where, and establish periods when, no hunting, fishing, or trapping will be permitted for reasons of public safety, administration, or compliance with provisions of applicable law. Except in emergencies, regulations closing areas to hunting, fishing, or trapping pursuant to this subsection shall be put into effect only after consultation with the appropriate State agency having responsibility for fish and wildlife. Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the States with respect to fish and wildlife on Federal lands and waters covered by this title nor shall anything in this Act be construed as authorizing the Secretary concerned to require a Federal permit to hunt, fish, or trap on Federal lands and waters covered by this title.

SEC. 507. WITHDRAWAL.

Subject to valid existing rights, all Federal lands within the preserve are hereby withdrawn from all forms of entry, appropriation, or disposal under the public land laws; from location, entry, and patent under the United States mining laws; and from disposition under all laws pertaining to mineral and geothermal leasing, and mineral materials, and all amendments thereto.

SEC. 508. REGULATION OF MINING.

Subject to valid existing rights, all mining claims located within the preserve shall be subject to all applicable laws and regulations applicable to mining within units of the National Park System, including the Mining in the Parks Act (16 U.S.C. 1901 et seq.), and any patent issued after the date of enactment of this title shall convey title only to the minerals together with the right to use the surface of lands for mining purposes, subject to such laws and regulations.

SEC. 509. STUDY AS TO VALIDITY OF MINING CLAIMS.

(a) The Secretary shall not approve any plan of operation prior to determining the validity of the unpatented mining claims, mill sites, and tunnel sites affected by such plan within the preserve and shall submit to Congress recommendations as to whether any valid or patented claims should be acquired by the United States, including the estimated acquisition costs of such claims, and a discussion of the environmental consequences of the extraction of minerals from these lands.

(b)(1) Notwithstanding any other provision of law, the Secretary shall permit the holder or holders of mining claims identified on the records of the Bureau of Land Management as Volco #A CAMC 105446, Volco #B CAMC 105447, Volco 1 CAMC 80155, Volco 2 CAMC 80156, Volco 3 CAMC

170259, Volco 4 CAMC 170260, Volco 5 CAMC 78405, Volco 6 CAMC 78404, and Volco 7 CAMC 78403, Volco Placer 78332, to continue exploration and development activities on such claims for a period of two years after the date of enactment of this title, subject to the same regulations as applied to such activities on such claims on the day before such date of enactment.

(2) At the end of the period specified in paragraph (1), or sooner if so requested by the holder or holders of the claims specified in such paragraph, the Secretary shall determine whether there has been a discovery of valuable minerals on such claims and whether, if such discovery had been made on or before July 1, 1994, such claims would have been valid as of such date under the mining laws of the United States in effect on such date.

(3) If the Secretary, pursuant to paragraph (2), makes an affirmative determination concerning the claims specified in paragraph (1), the holder or holders of such claims shall be permitted to continue to operate such claims subject only to such regulations as applied on July 1, 1994 to the exercise of valid existing rights on patented mining claims within a unit of the National Park System.

SEC. 510. GRAZING.

(a) The privilege of grazing domestic livestock on lands within the preserve shall continue to be exercised at no more than the current level, subject to applicable laws and National Park Service regulations.

(b) If a person holding a grazing permit referred to in subsection (a) informs the Secretary that such permittee is willing to convey to the United States any base property with respect to which such permit was issued and to which such permittee holds title, the Secretary shall make the acquisition of such base property a priority as compared with the acquisition of other lands within the preserve, provided agreement can be reached concerning the terms and conditions of such acquisition. Any such base property which is located outside the preserve and acquired as a priority pursuant to this section shall be managed by the Federal agency responsible for the majority of the adjacent lands in accordance with the laws applicable to such adjacent lands.

SEC. 511. UTILITY RIGHTS OF WAY.

(a)(1) Nothing in this title shall have the effect of terminating any validly issued right-of-way or customary operation, maintenance, repair, and replacement activities in such right-of-way, issued, granted, or permitted to Southern California Edison Company, its successors or assigns, which is located on lands included in the Mojave National Preserve, but outside lands designated as wilderness under section 601(a)(3). Such activities shall be conducted in a manner which will minimize the impact on preserve resources.

(2) Nothing in this title shall have the effect of prohibiting the upgrading of an existing electrical transmission line for the purpose of increasing the capacity of such transmission line in the Southern California Edison Company validly issued Eldorado-Lugo Transmission Line right-of-

way and Mojave-Lugo Transmission Line right-of-way, or in a right-of-way if issued, granted, or permitted by the Secretary adjacent to the existing Mojave-Lugo Transmission Line right-of-way (hereafter in this section referred to as `adjacent right-of-way'), including construction of a replacement transmission line: Provided, That--

(A) in the Eldorado-Lugo Transmission Line rights-of-way (hereafter in this section referred to as the "Eldorado rights-of-way") at no time shall there be more than three electrical transmission lines;

(B) in the Mojave-Lugo Transmission Line right-of-way (hereafter in this section referred to as the "Mojave right-of-way") and adjacent right-of-way, removal of the existing electrical transmission line and reclamation of the site shall be completed no later than three years after the date on which construction of the upgraded transmission line begins, after which time there may be only one electrical transmission line in the lands encompassed by Mojave right-of-way and adjacent right-of-way;

(C) if there are no more than two electrical transmission lines in the Eldorado rights-of-way, two electrical transmission lines in the lands encompassed by the Mojave right-of-way and adjacent right-of-way may be allowed;

(D) in the Eldorado rights-of-way and Mojave right-of-way no additional land shall be issued, granted, or permitted for such upgrade unless an addition would reduce the impacts to preserve resources;

(E) no more than 350 feet of additional land shall be issued, granted, or permitted for an adjacent right-of-way to the south of the Mojave right-of-way unless a greater addition would reduce the impacts to preserve resources; and

(F) such upgrade activities, including helicopter aided construction, shall be conducted in a manner which will minimize the impact on preserve resources.

(3) The Secretary shall prepare within one hundred and eighty days after the date of enactment of this title, in consultation with the Southern California Edison Company, plans for emergency access by the Southern California Edison Company to its rights-of-way.

(b)(1) Nothing in this title shall have the effect of terminating any validly issued right-of-way, or customary operation, maintenance, repair, and replacement activities in such right-of-way; prohibiting the upgrading of and construction on existing facilities in such right-of-way for the purpose of increasing the capacity of the existing pipeline; or prohibiting the renewal of such right-of-way issued, granted, or permitted to the Southern California Gas Company, its successors or assigns, which is located on lands included in the Mojave National Preserve, but outside lands designated as wilderness under section 601(a)(3). Such activities shall be conducted in a manner which will minimize the impact on preserve resources.

(2) The Secretary shall prepare within one hundred and eighty days after the date of enactment of this title, in consultation with the Southern California Gas Company, plans for emergency access by the Southern California Gas Company to its rights-of-way.

(c) Nothing in this title shall have the effect of terminating any validly issued right-of-way or customary operation, maintenance, repair, and replacement activities of existing facilities issued, granted, or permitted for communications cables or lines, which are located on lands included in the Mojave National Preserve, but outside lands designated as wilderness under section 601(a)(3). Such activities shall be conducted in a manner which will minimize the impact on preserve resources.

(d) Nothing in this title shall have the effect of terminating any validly issued right-of-way or customary operation, maintenance, repair, and replacement activities of existing facilities issued, granted, or permitted to Molybdenum Corporation of America; Molycorp, Incorporated; or Union Oil Company of California (d/b/a Unocal Corporation); or its successors or assigns, or prohibiting renewal of such right-of-way, which is located on lands included in the Mojave National Preserve, but outside lands designated as wilderness under section 601(a)(3). Such activities shall be conducted in a manner which will minimize the impact on preserve resources.

SEC. 512. PREPARATION OF MANAGEMENT PLAN.

Within three years after the date of enactment of this title, the Secretary shall submit to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives a detailed and comprehensive management plan for the preserve. Such plan shall place emphasis on historical and cultural sites and ecological and wilderness values within the boundaries of the preserve. Such plan shall evaluate the feasibility of using the Kelso Depot and existing railroad corridor to provide public access to and a facility for special interpretive, educational, and scientific programs within the preserve. Such plan shall specifically address the needs of individuals with disabilities in the design of services, programs, accommodations and facilities consistent with section 504 of the Rehabilitation Act of 1973, Public Law 101-336, the Americans with Disabilities Act of 1990 (42 U.S.C. 12101), and other appropriate laws and regulations.

SEC. 513. GRANITE MOUNTAINS NATURAL RESERVE.

(a) ESTABLISHMENT- There is hereby designated the Granite Mountains Natural Reserve within the preserve comprising approximately nine thousand acres as generally depicted on a map entitled "Mojave National Park Boundary and Wilderness--Proposed 6", dated May 1991.

(b) COOPERATIVE MANAGEMENT AGREEMENT- Upon enactment of this title, the Secretary shall enter into a cooperative management agreement with the University of California for the purposes of managing the lands within the Granite Mountains Natural Reserve. Such cooperative agreement shall ensure continuation of arid lands research and educational activities of the University of California, consistent with the provisions of this title and laws generally applicable to units of the National Park System.

SEC. 514. SODA SPRINGS DESERT STUDY CENTER.

Upon enactment of this title, the Secretary shall enter into a cooperative management agreement with California State University for the purposes of managing facilities at the Soda Springs Desert Study Center. Such cooperative agreement shall ensure continuation of the desert research and educational activities of California State University, consistent with the provisions of this title and laws generally applicable to units of the National Park System.

SEC. 515. CONSTRUCTION OF VISITOR CENTER.

The Secretary is authorized to construct a visitor center in the preserve for the purpose of providing information through appropriate displays, printed material, and other interpretive programs, about the resources of the preserve.

SEC. 516. ACQUISITION OF LANDS.

The Secretary is authorized to acquire all lands and interest in lands within the boundary of the preserve by donation, purchase, or exchange, except that--

(1) any lands or interests therein within the boundary of the preserve which are owned by the State of California, or any political subdivision thereof, may be acquired only by donation or exchange except for lands managed by the California State Lands Commission; and

(2) lands or interests therein within the boundary of the preserve which are not owned by the State of California or any political subdivision thereof may be acquired only with the consent of the owner thereof unless the Secretary determines, after written notice to the owner and after opportunity for comment, that the property is being developed, or proposed to be developed, in a manner which is detrimental to the integrity of the preserve or which is otherwise incompatible with the purposes of this title: Provided, however, That the construction, modification, repair, improvement, or replacement of a single-family residence shall not be determined to be detrimental to the integrity of the preserve or incompatible with the purposes of this title.

SEC. 517. ACQUIRED LANDS TO BE MADE PART OF MOJAVE NATIONAL PRESERVE.

Any lands acquired by the Secretary under this title shall become part of the Mojave National Preserve.

SEC. 518. MOJAVE NATIONAL PRESERVE ADVISORY COMMISSION.

(a) The Secretary shall establish an Advisory Commission of no more than fifteen members, to advise the Secretary concerning the development and implementation of a new or revised comprehensive management plan for the Mojave National Preserve.

(b)(1) The advisory commission shall include an elected official for each County within which any part of the preserve is located, a representative of the owners of private properties located within or immediately adjacent to the preserve, and other members representing persons actively engaged in grazing and range management, mineral exploration and development, and persons with expertise in relevant fields, including geology, biology, ecology, law enforcement, and the protection and management of National Park resources and values.

(2) Vacancies in the advisory commission shall be filled by the Secretary so as to maintain the full diversity of views required to be represented on the advisory commission.

(c) The Federal Advisory Committee Act shall apply to the procedures and activities of the advisory commission.

(d) The advisory commission shall cease to exist ten years after the date of its establishment.

SEC. 519. NO ADVERSE AFFECT ON LAND UNTIL ACQUIRED.

Unless and until acquired by the United States, no lands within the boundaries of wilderness areas or National Park System units designated or enlarged by this Act that are owned by any person or entity other than the United States shall be subject to any of the rules or regulations applicable solely to the Federal lands within such boundaries and may be used to the extent allowed by applicable law. Neither the location of such lands within such boundaries nor the possible acquisition of such lands by the United States shall constitute a bar to the otherwise lawful issuance of any Federal license or permit other than a license or permit related to activities governed by 16 U.S.C. 4601-22(c). Nothing in this section shall be construed as affecting the applicability of any provision of the Mining in the Parks Act (16 U.S.C. 1901 et seq.), the Clean Air Act (42 U.S.C. 7401 et seq.), or regulations applicable to oil and gas development as set forth in 36 CFR 9B.

TITLE VI--NATIONAL PARK SYSTEM WILDERNESS

SEC. 601. DESIGNATION OF WILDERNESS.

(a) In furtherance of the purposes of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1311 et seq.), the following lands within the units of the National Park System designated by this Act are hereby designated as wilderness, and therefore, as components of the National Wilderness Preservation System:

(3) Mojave National Preserve Wilderness, comprising approximately six hundred ninety-five thousand two hundred acres, as generally depicted on ten maps entitled "Mojave National Park

Boundary and Wilderness—Proposed", and numbered in the title one through ten, and dated March 1994 or prior, and seven maps entitled `Mojave National Park Wilderness--Proposed', numbered in the title one through seven, and dated March 1994 or prior, and which shall be known as the Mojave Wilderness.

SEC. 602. FILING OF MAPS AND DESCRIPTIONS.

Maps and a legal description of the boundaries of the areas designated in section 601 of this title shall be on file and available for public inspection in the appropriate offices of the National Park Service, Department of the Interior. As soon as practicable after the date of enactment of this title, maps and legal descriptions of the wilderness areas shall be filed with the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives, and such maps and legal descriptions shall have the same force and effect as if included in this title, except that the Secretary may correct clerical and typographical errors in such maps and legal descriptions.

SEC. 603. ADMINISTRATION OF WILDERNESS AREAS.

The areas designated by section 601 of this title as wilderness shall be administered by the Secretary in accordance with the applicable provisions of the Wilderness Act governing areas designated by that title as wilderness, except that any reference in such provision to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this title, and where appropriate, and reference to the Secretary of Agriculture shall be deemed to be a reference to the Secretary of the Interior.

TITLE VII--MISCELLANEOUS PROVISIONS

SEC. 702. LAND TENURE ADJUSTMENTS.

In preparing land tenure adjustment decisions with the California Desert Conservation Area, of the Bureau of Land Management, the Secretary shall give priority to consolidating Federal ownership within the national park units and wilderness areas designated by this Act.

SEC. 703. LAND DISPOSAL.

Except as provided in section 406 of this Act, none of the lands within the boundaries of the wilderness or park areas designated under this Act shall be granted to or otherwise made available for use by the Metropolitan Water District or any other agencies or persons pursuant to the Boulder Canyon Project Act (43 U.S.C. 617-619b) or any similar Acts.

SEC. 704. MANAGEMENT OF NEWLY ACQUIRED LANDS.

Any lands within the boundaries of a wilderness area designated under this Act which are acquired by the Federal Government, shall become part of the wilderness area within which they are located and shall be managed in accordance with all the provisions of this Act and other laws applicable to such wilderness area.

SEC. 705. NATIVE AMERICAN USES AND INTERESTS.

(a) ACCESS- In recognition of the past use of the National Park System units and wilderness areas designed under this Act by Indian people for traditional cultural and religious purposes, the Secretary shall ensure access to such park system units and wilderness areas by Indian people for such traditional cultural and religious purposes. In implementing this section, the Secretary, upon the request of an Indian tribe or Indian religious community, shall temporarily close to the general public use of one or more specific portions of the park system unit or wilderness area in order to protect the privacy of traditional cultural and religious activities in such areas by Indian people. Any such closure shall be made to affect the smallest practicable area for the minimum period necessary for such purposes. Such access shall be consistent with the purpose and intent of Public Law 95-341 (42 U.S.C. 1996) commonly referred to as the "American Indian Religious Freedom Act", and with respect to areas designated as wilderness, the Wilderness Act (78 Stat. 890; 16 U.S.C. 1131).

(b) STUDY- (1) The Secretary, in consultation with the Timbisha Shoshone Tribe and relevant Federal agencies, shall conduct a study, subject to the availability of appropriations, to identify lands suitable for a reservation for the Timbisha Shoshone Tribe that are located within the Tribe's aboriginal homeland area within and outside the boundaries of the Death Valley National Monument and the Death Valley National Park, as described in title III of this Act.

(2) Not later than 1 year after the date of enactment of this title, the Secretary shall submit a report to the Committee on Energy and Natural Resources and the Committee on Indian Affairs of the United States Senate, and the Committee on Natural Resources of the United States House of Representatives on the results of the study conducted under paragraph (1).

SEC. 706. FEDERAL RESERVED WATER RIGHTS.

(a) Except as otherwise provided in section 204 of this Act, with respect to each wilderness area designated by this Act, Congress hereby reserves a quantity of water sufficient to fulfill the purposes of this Act. The priority date of such reserved water rights shall be the date of enactment of this Act.

(b) The Secretary and all other officers of the United States shall take all steps necessary to protect the rights reserved by this section, including the filing by the Secretary of a claim for the quantification of such rights in any present or future appropriate stream adjudication in the courts of the State of California in which the United States is or may be joined in accordance with section 208 of the Act of July 10, 1952 (66 Stat. 560, 43 U.S.C. 666), commonly referred to as the McCarran Amendment.

(c) Nothing in this Act shall be construed as a relinquishment or reduction of any water rights reserved or appropriated by the United States in the State of California on or before the date of enactment of this Act.

(d) The Federal water rights reserved by this Act are specific to the wilderness area located in the State of California designated under this Act. Nothing in this Act related to the reserved Federal water rights shall be construed as establishing a precedent with regard to any future designations, nor shall it constitute an interpretation of any other Act or any designation made thereto.

SEC. 707. CALIFORNIA STATE SCHOOL LANDS.

(a) NEGOTIATIONS TO EXCHANGE- Upon request of the California State Lands Commission (hereinafter in this section referred to as the "Commission"), the Secretary shall enter into negotiations for an agreement to exchange Federal lands or interests therein on the list referred to in subsection (b)(2) for California State School lands or interests therein which are located within the boundaries of one or more of the wilderness areas or park system units designated by this Act (hereinafter in this section referred to as "State School lands."). The Secretary shall negotiate in good faith to reach a land exchange agreement consistent with the requirements of section 206 of the Federal Land Policy and Management Act of 1976.

(b) PREPARATION OF LIST- Within six months after the date of enactment of this Act, the Secretary shall send to the Commission and to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives a list of the following:

(1) State School lands or interests therein (including mineral interests) which are located within the boundaries of the wilderness areas or park system units designated by this Act.

(2) Lands within the State of California under the jurisdiction of the Secretary that the Secretary determines to be suitable for disposal for exchange, identified in the following priority--

(A) lands with mineral interests, including geothermal, which have the potential for commercial development but which are not currently under mineral lease or producing Federal mineral revenues;

(B) Federal claims in California managed by the Bureau of Reclamation that the Secretary determines are not needed for any Bureau of Reclamation project; and

(C) any public lands in California that the Secretary, pursuant to the Federal Land Policy and Management Act of 1976, has determined to be suitable for disposal through exchange.

(3) Any other Federal land, or interest therein, within the State of California, which is or becomes surplus to the needs of the Federal Government. The Secretary may exclude, in the Secretary's discretion, lands located within, or contiguous to, the exterior boundaries of lands held in trust for a federally recognized Indian tribe located in the State of California.

(4) The Secretary shall maintain such list and shall annually transmit such list to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives until all of the State School lands identified in paragraph (1) have been acquired.

(c) DISPOSAL OF SURPLUS FEDERAL PROPERTY- (1) Effective upon the date of enactment of this title and until all State School lands identified in paragraph (b)(1) of this section are acquired, no Federal lands or interests therein within the State of California may be disposed of from Federal ownership unless--

(A) the Secretary is notified of the availability of such lands or interest therein;

(B) the Secretary has notified the Commission of the availability of such lands or interests therein for exchange; and

(C) the Commission has not notified the Secretary within six months that it wishes to consider entering into an exchange for such lands or interests therein.

(2) If the Commission notifies the Secretary that it wishes to consider an exchange for such lands or interests therein, the Secretary shall attempt to conclude such exchange in accordance with the provisions of this section as quickly as possible.

(3) If an agreement is reached and executed with the Commission, then upon notice to the head of the agency having administrative jurisdiction over such lands or interests therein, the Secretary shall be vested with administrative jurisdiction over such land or interests therein for the purpose of concluding such exchange.

(4) Upon the acquisition of all State School lands or upon notice by the Commission to the Secretary that it no longer has an interest in such lands or interests therein, such lands or interests shall be released to the agency that originally had jurisdiction over such lands or interests for disposal in accordance with the laws otherwise applicable to such lands or interests.

(d) NO EFFECT ON MILITARY BASE CLOSURES- The provisions of this section shall not apply to the disposal of property under title II of the Defense Authorization Amendments and Base Closure and Realignment Act (Public Law 100-526; 102 Stat. 2627; 10 U.S.C. 2687 note) or the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510; 104 Stat. 1808; 10 U.S.C. 2687 note).

SEC. 708. ACCESS TO PRIVATE PROPERTY.

The Secretary shall provide adequate access to nonfederally owned land or interests in land within the boundaries of the conservation units and wilderness areas designated by this Act which will provide the owner of such land or interest the reasonable use and enjoyment thereof.

SEC. 709. FEDERAL FACILITIES FEE EQUITY.

(a) POLICY STATEMENT- It is the intent of Congress that entrance, tourism or recreational use fees for use of Federal lands and facilities not discriminate against any State or any region of the country.

(b) FEE STUDY- The Secretary, in cooperation with other affected agencies, shall prepare and submit a report by May 1, 1996 to the Committee on Energy and Natural Resources of the United States Senate, the Committee on Natural Resources of the United States House of Representatives, and any other relevant committees, which shall--

(1) identify all Federal lands and facilities that provide recreational or tourism use; and

(2) analyze by State and region any fees charged for entrance, recreational or tourism use, if any, on Federal lands or facilities in a State or region, individually and collectively.

(c) RECOMMENDATIONS- Following completion of the report in subsection (b), the Secretary, in cooperation with other affected agencies, shall prepare and submit a report by May 1, 1997 to the Committee on Energy and Natural Resources of the United States Senate, the Committee on Natural Resources of the United States House of Representatives, and any other relevant committees, which shall contain recommendations which the Secretary deems appropriate for implementing the congressional intent outlined in subsection (a).

SEC. 710. LAND APPRAISAL.

Lands and interests in lands acquired pursuant to this Act shall be appraised without regard to the presence of a species listed as threatened or endangered pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

SEC. 711. DEFINITION.

Any reference to the term “this Act” in titles I through IX shall be deemed to be solely a reference to sections 1 and 2, and titles I through IX.

TITLE VIII--MILITARY LANDS AND OVERFLIGHTS

SEC. 801. SHORT TITLE AND FINDINGS.

(a) SHORT TITLE- This title may be cited as the “California Military Lands Withdrawal and Overflights Act of 1994”.

(b) FINDINGS- The Congress finds that--

(1) military aircraft testing and training activities as well as demilitarization activities in California are an important part of the national defense system of the United States, and are essential in order to secure for the American people of this and future generations an enduring and viable national defense system;

(2) the National Park System units and wilderness areas designated by this Act lie within a region critical to providing training, research, and development for the Armed Forces of the United States and its allies;

(3) there is a lack of alternative sites available for these military training, testing, and research activities;

(4) continued use of the lands and airspace in the California desert region is essential for military purposes; and

(5) continuation of these military activities, under appropriate terms and conditions, is not incompatible with the protection and proper management of the natural, environmental, cultural, and other resources and values of the Federal lands in the California desert area.

SEC. 802. MILITARY OVERFLIGHTS.

(a) OVERFLIGHTS- Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard within such units.

(b) SPECIAL AIRSPACE- Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude the designation of new units of special airspace or the use or establishment of military flight training routes over such new park system or wilderness units.

(c) NO EFFECT ON OTHER LAWS- Nothing in this section shall be construed to modify, expand, or diminish any authority under other Federal law.

TITLE IX--AUTHORIZATION OF APPROPRIATIONS

SEC. 901. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the National Park Service and to the Bureau of Land Management to carry out this Act an amount not to exceed $36,000,000 over and above that provided in fiscal year 1994 for additional administrative and construction costs over the fiscal year 1995-1999 period, and $300,000,000 for all land acquisition costs. No funds in excess of these amounts may be used for construction, administration, or land acquisition authorized under this Act without a specific authorization in an Act of Congress enacted after the date of enactment of this Act.

APPENDIX B: KELSO DEPOT DEVELOPMENT CONCEPT PLAN

During the planning process for this general management plan, the public, the local Congressional Representative, and the San Bernardino Board of County Supervisors provided overwhelming support for the restoration of the Kelso Depot. The California Desert Protection Act of 1994 authorized the construction of a visitor center in the preserve. It is proposed that the Kelso Depot be renovated to become a museum and interpretive facility for the preserve. To increase the speed at which this would take place, a development concept plan for the depot has been included in this general management plan. The National Park Service uses a development concept plan to bridge the gap between a general management plan and the preliminary construction and design drawings for a specific geographic area within the NPS boundaries. This is accomplished by providing greater detailed direction on options for development at a particular geographic area. Specific details on building and site functions would be prepared in Title 1 (Preliminary Design or Schematic Design) drawings and documents. The following are several design concepts with options for developing the Kelso Depot into a visitor center.

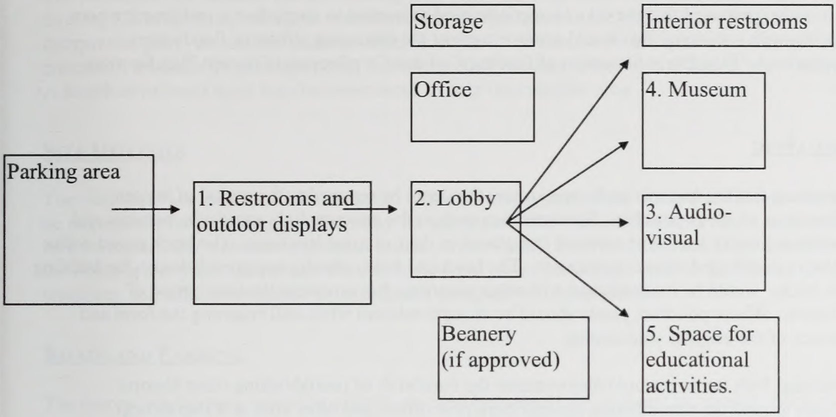
PROPOSED ACTION CONCEPT

See proposed action drawings from pages 234 through 238.

This concept works under the assumption that the Kelso Depot would become a major museum and interpretive facility for the preserve. The visitor center would include a lobby, information space, museum, audio-visual exhibits and space for presentations, public restrooms, publication sales, and storage space. The building would also be modified to provide the following functions: (1) The Beanery would be restored to an operating food service; (2) NPS administrative offices would be established in the depot; (3) Short term lodging for employees or others may be established. (This would only be done if results from the current flood study would allow for overnight use).

SPATIAL RELATIONSHIPS AND PREFERRED FUNCTIONAL SEQUENCE

Visitors would be directed to specified parking lots which would be placed to direct foot traffic past the restrooms (1) which are located near the parking area in a new building to allow for 24-hour use. It is preferred that this building not be attached to the depot to avoid distracting from the historical character. Visitors would then proceed to the lobby (2) where general information is available. Next, interpretation within the audio-visual (3) and museum (4) would be options in the visitor sequence. Special groups associated with educational programs would also be directed to the space for educational activities (5).



The National Park Service would approach owners of property adjacent to the depot to see if they would be willing to sell or donate their property to the government. If the National Park Service acquires this property, it would allow for the construction of such things as visitor parking, walks, information centers and restrooms. The National Park Service would also seek to acquire the historic Kelso School House for preservation and interpretation. Structures must fit in with the cultural landscape.

TRAINS AND VISITORS

The future plan would consider solutions to resolve conflicts and safety concerns relating to pedestrians and trains. Because of the public's high interest in existing train operations, the National Park Service would work with Union Pacific to find a way to keep the public off the tracks while allowing them to observe train operations (see the section on interpretation for more information). Options that would allow rail passengers to unload off of trains and enter the depot would be considered in future design work. The National Park Service would cooperate with the Union Pacific and Amtrak to find solutions to other common objectives and problems.

The Friends of Kelso Depot owns a caboose that is currently located at Kelso. The caboose cannot be directly associated with the depot since it is not from the period of historic significance that the depot would be restored to. The National Park Service would work with Union Pacific to find an appropriate location where the public can appreciate it. After the caboose has been placed, the National Park Service may consider the option of inviting private organizations to assist in the restoration of the caboose.

FLOOD MITIGATION

The gap in the northern dike where the Kelbaker Road currently cuts through would be filled in, at least partially, to increase the level of flood protection for the Kelso Depot and Union Pacific housing area. It is also proposed that the dike be reconstructed as needed to strengthen it and face it where appropriate with a material that would armor it against the damaging effects of floodwaters. See appendix A "Floodplain Statement of Findings" of this Development Concept Plan for more details.

LANDSCAPING

It is proposed that the historic landscape around the depot be restored to the period of historic significance as much as possible. Site amenities such as the concrete light standards, benches and brick surfaced walks should be restored and placed in their original locations. The brick paved walks would be reconstructed where appropriate. The lawn and trees, which once grew between the building and the tracks, would be reestablished with other plantings that represent the time period of significance. Where possible, plants should be drought tolerant while still retaining the form and appearance of the original landscaping.

The National Park Service would also evaluate the feasibility of reestablishing other historic landscapes around the schoolhouse, general store/post office, and other sites at Kelso to help reestablish the historic feel of the town. The National Park Service could also approach Union Pacific to consider ways in which the view from the depot to the Union Pacific housing area may be improved by reviewing from view those things that may distract from the overall view.

INTERPRETATION AND INFORMATION

A site-specific interpretive plan would consider the substance of the interpretive program, exhibits, displays, and nature of the support facilities at Kelso. Items of historic significance used in interpretation work would not be located where they would be threatened by potential flooding.

An unstaffed information kiosk and a restroom (comfort station) would be located near the proposed parking lot to take care of visitor needs when the depot is not open. The architectural character of these and any other proposed structures must complement the visual character of the historic setting of Kelso but also distinguish themselves from the remaining historic buildings. A unifying design theme must be established to tie the whole proposed development together.

If the National Park Service is able to acquire the historic general store/post office and or school house, it is proposed that these buildings be used for interpretive purposes. The level of historic restoration or treatment of these buildings would be determined after they have been thoroughly evaluated for such things as hazardous materials and structural integrity.

There is strong public interest in the current railroad activities at Kelso. The interpretive plan would consider the possibility of inviting Union Pacific to a partnership in the creation of an outdoor display area that highlights the historic and current railroad operations at Kelso. It is also proposed that this plan consider an elevated viewing platform be constructed east of the depot, north of the tracks and near the proposed parking lot. Its function would be to allow the public to safely observe active railroad operations. An additional fence or some type of barrier would need to be constructed between the depot and the tracks for safety reasons. Attention to location of these proposed features would be needed to avoid any conflicts with the historic character of the depot and the historic district.

The remains of the historic iron ore loading area that is located south of the tracks and east of the existing Kelbaker Road would be considered for interpretation to the public in the long-term interpretive plan. A roadside pullout would be constructed along with interpretation displays and a potential viewpoint for photographing and interpreting the depot, the town of Kelso, and Vulcan Mine. A length of railroad track may be constructed to help interpret the area

SITE UTILITIES

The National Park Service would construct its own water system since Union Pacific does not wish to be responsible for providing potable water for the depot. The National Park Service would construct its own wastewater treatment system to handle onsite waste. The National Park Service would tie into the existing electrical system and work with the local phone service provider to find a way to improve telephone and data transmission to meet future demands for phone service.

ROADS AND PARKING

The current road system would be slightly changed because of the proposal to partially fill in the dike where Kelbaker Road cuts through it. The direction of traffic flow would remain unchanged from current conditions. The cut in the dike, which the Kelbaker Road now passes through, would be filled in to increase the level of flood protection for the depot. This action would require that the Kelbaker Road to be ramped on each side of the dike to allow for vehicles to drive up and over the dike. A drainage culvert or other appropriate measures would be needed on the north side of the dike to protect the elevated road from floodwaters. To increase the level of safety for pedestrians crossing the Kelso-Cima road to get to the depot, emphasis must be placed on traffic warning signs and other appropriate devices would be installed near pedestrian cross walks to warn drivers of the potential for pedestrians ahead.

Railroad crossing arms would be installed at the existing crossing to aid in the control of traffic when trains are present. The National Park Service would work with Union Pacific to gain funding for the crossing arms.

To avoid creating visual distractions that would reduce the historic setting of the depot, the parking lots and other new facilities would be placed as far away from the depot as reasonably possible. It is recognized that some parking may need to be placed closer to allow access for disabled staff and visitors. It is proposed that the construction of parking be phased. The first action would be to create temporary parking north of the depot that would not be paved but would be clearly defined. If the National Park Service can acquire the right to develop on land located east of the depot, phase 1 parking and a comfort station would be constructed and the temporary parking areas would be eliminated. Phase 2 parking would be built when demand for parking exceeds the capacity of phase 1 parking.

CONCEPT "A"

This concept is the same as proposed action with the following changes (see Concept A drawing).

This concept is developed around the basis that all new development would be on existing NPS property and the existing road system would remain relatively unchanged. If a private property owner wishes to sell property adjacent to the depot at some time in the future, additional parking could be built as explained in other alternatives. All concepts work under the assumption that the Kelso Depot would become a major museum and interpretive facility for the preserve.

ROADS AND PARKING

All road alignments would remain relatively unchanged with the exception of a proposed realignment to tighten the intersection of Kelbaker, Kelso-Cima roads by reducing the turning radius for the north bound right turn. This would provide more space on the west side of the depot for parking and landscaping. Parking would be confined to the NPS property, north of the depot.

INTERPRETATION

The comfort station and unstaffed interpretive building would be located on NPS property. The National Park Service would only address restoration or treatment of historic buildings that are located on NPS property. The National Park Service would seek to develop formal agreements with private property owners where historic structures or features exist at Kelso with the intent of possibly including these features in an interpretive plan. The National Park Service would consider cooperating with Union Pacific on an outdoor railroad exhibit area as described in the proposed action but the location is unknown.

FLOOD MITIGATION

The dike north of the depot would not be filled, but warning systems and dike protection as described in the proposed action would be used.

CONCEPT "B"

This concept is the same as proposed action with the following changes.

Refer to Concept "B" drawing for the Kelso property and drawings #3 and #4 for options for accessing to the depot with the dike closed.

This concept is created around the assumption that all new development would be limited to existing NPS property. The dike located north of the depot would be filled in to increase the degree of flood protection for the depot and Union Pacific housing area. This would require the rerouting of the Kelbaker road as shown on drawings #1 and #2.

ROADS AND PARKING

The current road system would be drastically changed because of the filling in of the existing dike where the Kelbaker Road cuts through it. To keep the traffic flowing on the Kelbaker and the Kelso-Cima Roads and to avoid breaking of trains in the middle of the siding, a new railroad crossing would need to be built along with a new highway that would tie these elements together. This action would be taken to resolve the current conflict between highway traffic and trains that block the highway crossing and the pedestrian that walk onto the tracks. The existing portion of Cima road to the depot would become a dead end road with the ability for traffic to turn around and return.

LANDSCAPING

Same as the proposed action with less area for landscaping.

INTERPRETATION AND INFORMATION

The comfort station and unstaffed interpretive building would be located on NPS property. The National Park Service would only address restoration or treatment of historic buildings that are located on NPS property. The National Park Service would seek to develop formal agreements with private property owners where historic structures or features exist at Kelso with the intent of possibly including these features in an interpretive plan. The National Park Service would consider cooperation with Union Pacific on an outdoor railroad exhibit area as described in the proposed action but the location is unknown.

CONCEPT "C"

Same as the proposed action with the following differences. (There is no drawing for this alternative)

This concept assumes that the National Park Service would be able to purchase private property from willing sellers as described in the proposed action and the road system would be changed.

ROADS AND PARKING

The existing road system would be changed as proposed in Concept "B." The National Park Service would develop parking as shown on the proposed action drawing.

FLOOD MITIGATION

Same as Concept "B."

ALTERNATIVE ROAD ALIGNMENTS CONSIDERED

Both alternatives try to get the railroad crossing on a point on the tracks where there would less chance for train traffic to block the road for long periods of time.

MOVING THE ROAD TO THE EAST (DRAWING #1)

A new road south of the tracks would need to be taken far enough to avoid the private property in this area. At this time, this does not appear to be a problem. The crossing would only have to go over one or two sets of tracks, reducing costs. Crossing arms would be installed at the new crossing. Wilderness boundaries may limit some options.

MOVING THE ROAD TO THE WEST (DRAWING #2)

A new road would approximately follow an abandoned road that is located on the south side of the tracks. The Kelbaker intersection on the north of the dike would become a 4-way intersection with a road down to the dike to allow continued access to the private property (RV park). If the private property owner decides to sell, the intersection could become a 3-way intersection. Access to the depot would be from the east off of the Kelso-Cima Road.

CONCEPT CONSIDERED BUT REJECTED

Place the Kelbaker Road in a tunnel under the existing railroad crossing. This alternative would be very costly and require that the Kelbaker Road and Kelso-Cima Road intersection be relocated north of the dike to allow for grade transition into the tunnel from the intersection. Flash flooding could potentially close the tunnel during storms.

APPENDIX B-1: FLOODPLAIN STATEMENT OF FINDINGS

The National Park Service owns the historic Kelso Depot. The depot is one of the significant cultural resources within Mojave National Preserve. Construction on the building was completed in 1925 and served the Union Pacific Railroad by providing housing and meals to employees and meals to the public until it was closed and abandoned in 1985. The architectural integrity of this 2-story building remains relatively intact. The depot contains approximately 11,600 square feet. The depot sets within the town of Kelso that is located within the heart of the preserve. Kelso contains remnants of other historic structures and a few modern structures that house an estimated 30 residents. The depot property is located just south and east of the junction of the Kelbaker Road and Kelso-Cima roads and north of the Union Pacific railroad tracks.

The Draft General Management plan for Mojave National Preserve is recommending that this building be restored to its period of historic significance and adaptively used as a major museum and interpretive facility for Mojave National Preserve. The National Park Service completed a historic structure report in 1998 for the Kelso Depot that provides an analysis of requirements for treatment of a historic resource for preservation and use.

JUSTIFICATION

Because of the historic significance of the Kelso Depot, the National Park Service has requested funding to stabilized and protect this building from further deterioration. Public comments and scoping meetings held during the general management planning process were overwhelmingly in support for restoration of and pubic use of the depot. The public interest and opportunities for interpreting this historic structure and cultural landscape are high. The San Bernardino County Board of Supervisors formally passed a resolution on February 24, 1998, recommending that the U.S. Department of the Interior fund the stabilization and restoration of the Kelso Depot.

The depot sets at a prime location to contact visitors by being located next to a highway junction that receives visitor traffic from four out of the six major highway entrances. A visitor study conducted in April 1997, and traffic counter data from 1997, indicated that an estimated 90% of all visitors who enter Mojave National Preserve, pass through this highway junction. The depot is about 250 feet from the junction and very visible to travelers. The preserve has over 1.6 million acres with six primary highway entrances. Locating the visitor center next to the railroad could provide options for an alternative mode of transportation for visitors coming to the preserve.

Section 512 of the California Desert Protection Act of 1994, calls for the general management plan to "evaluate the feasibility of using the Kelso Depot and existing railroad corridor to provide public access to and a facility for special interpretive, educational, and scientific programs within the preserve." The planning effort has evaluated the feasibility of using the depot as a visitor contact center and museum. This proposal is justified by a strong need to restore, protect and interpret this historic structure. This need is driven by strong support from the general public and local county government. The depot is also an excellent location from which to contact visitors. We believe that the combination of these factors provides strong justification for creating a visitor facility within a floodplain, despite the potential threat of flooding. We also believe that the application of recommended mitigation measures can substantially reduce the threat to life or government property.

INVESTIGATION OF ALTERNATIVE SITES

Alternative locations for a visitor contact facilities within the preserve include: land south of Baker California along the Kelbaker Road, land south of the Nipton road junction on Ivanpah Road, and north of interstate highway 40 on Kelbaker Road. Each location would require construction on previously undisturbed ground and the extension of power and telephone lines for a least 1-mile to each site. This would create a visual intrusion on each open landscape that presently may only have visual intrusions such as the road, a barbed wire fence, or cattle corral to distract from the scenery. Each alternative location would only capture up to 33% of the total, current, traffic flow and require many visitors to drive for over 1 hour to reach the visitor center from the other entrances. There is the possibility of leasing a building within the town of Baker for use as a visitor contact facility. The advantages of this location include the potential for a high number of people that may be attracted off of interstate 15 traffic. There are also easily available public utilities and lower impact on land than may occur at alternative sites. The disadvantages of a Baker site include the fact that it would be off the main flow of visitor traffic and many people may not make the effort to travel to Baker to get information on the preserve. In 1997 and 1998, visitation data indicate that the natural and cultural features within the preserve are stronger attractions to visitors than the existing visitor information center in Baker. This situation occurs, despite the fact that the center is frequently advertised on a local radio station.

DESCRIPTION OF SITE SPECIFIC FLOOD RISK

The National Park Service Water Resources Division conducted a floodplain study for the Kelso Depot during the spring of 1998. Results of the study indicate that the elevation of the 100-year flood is below the existing levee elevation. However, the existing levee does not provide adequate long-term protection due to its fine-grained, non -reinforced material, which will undoubtedly fail when subjected to prolonged flooding. With no levee protection, the basement of the depot could be expected to receive water on the average of about every five years. Furthermore, flooding of the first floor could be expected about every ten years. The 100-year flood could subject an unprotected depot to several feet of inundation with associated velocities in excess of 10 fps. This scenario should be considered very hazardous and appropriate mitigation should be implemented. If the levee were to partially fail upstream of the depot, flood waters could access the Kelso-Cima road, and discharge would be contained between the remaining portion of the levee and the railroad grade, putting the depot in the direct path of the flood. Modeling results indicate that during this scenario, it would require only about 10-20 percent of the 100-year flood to reach the foundation of the depot. Associated velocities would likely exceed 5 feet per second, and should be considered hazardous.

In summary, flood hazard at the site of the Kelso Depot ranges from fairly frequent nuisance water to infrequent, but potentially devastating floods. Consequently, occupation of this site will require appropriate mitigation.

MITIGATION OF POTENTIAL FLOOD HAZARDS

Flood protection would be provided for the property by reinforcing and repairing the existing levee to contain the 100-year flood. This levee would have a height at least 9.3 feet above the channel bottom. This configuration would contain the predicted 100-year flood elevations and provide an average of 2 feet of freeboard. In addition to the design height, the levee would be armored at critical points with material large enough to withstand velocities of 12–13 feet per second. Other sections would be repaired and thickened with local material to increase the level of protection. A levee maintenance program would be established.

A warning and evacuation plan would also be implemented to protect human life in the case of extreme floods. Flood warning would occur by developing communication with the National Weather Service in the area and requesting that they notify the park during extreme storm events. In the case of an extreme storm, park visitors and employees would evacuate the Kelso Depot via the Kelso-Cima road.

SUMMARY

There are several factors that contribute to the need to protect and use the Kelso Depot. The Kelso depot is one of the significant cultural resources found within Mojave National Preserve and needs to be protected from potential threats. The depot's location along an active railroad line and a primary highway make it an ideal location from which to provide the public with information and interpretive services. Despite the continued threat of flooding, it is believed that the depot and human life can be protected by implementing a combination of proposed and other mitigating actions. The levee would be rebuilt and protected at sections where water flows have significantly cut into the levee. Other sections of the levee would be repaired as needed with fill material to increase or maintain the desired thickness and height of the levee. The storm channel located adjacent to the north side of the levee, would be improved and maintained to reduce the potential for impact to the base of the levee from small flows. The levee would be inspected on an annual or more frequent basis, depending upon the intensity and frequency of storms to determine appropriate maintenance work needed to maintain the levee. Using available technology, a communication link would be established with the National Weather Service to establish provide an early warning system for staff and visitors at the depot.

It is recognized that a threat to live and property exists as a result of the location of the depot within a flood plain, but that the threat can be mitigated by taking appropriate actions. It is proposed that the depot be occupied and used for visitor and NPS administrative functions, and that initial and continuing mitigating efforts be taken to protect life and property.

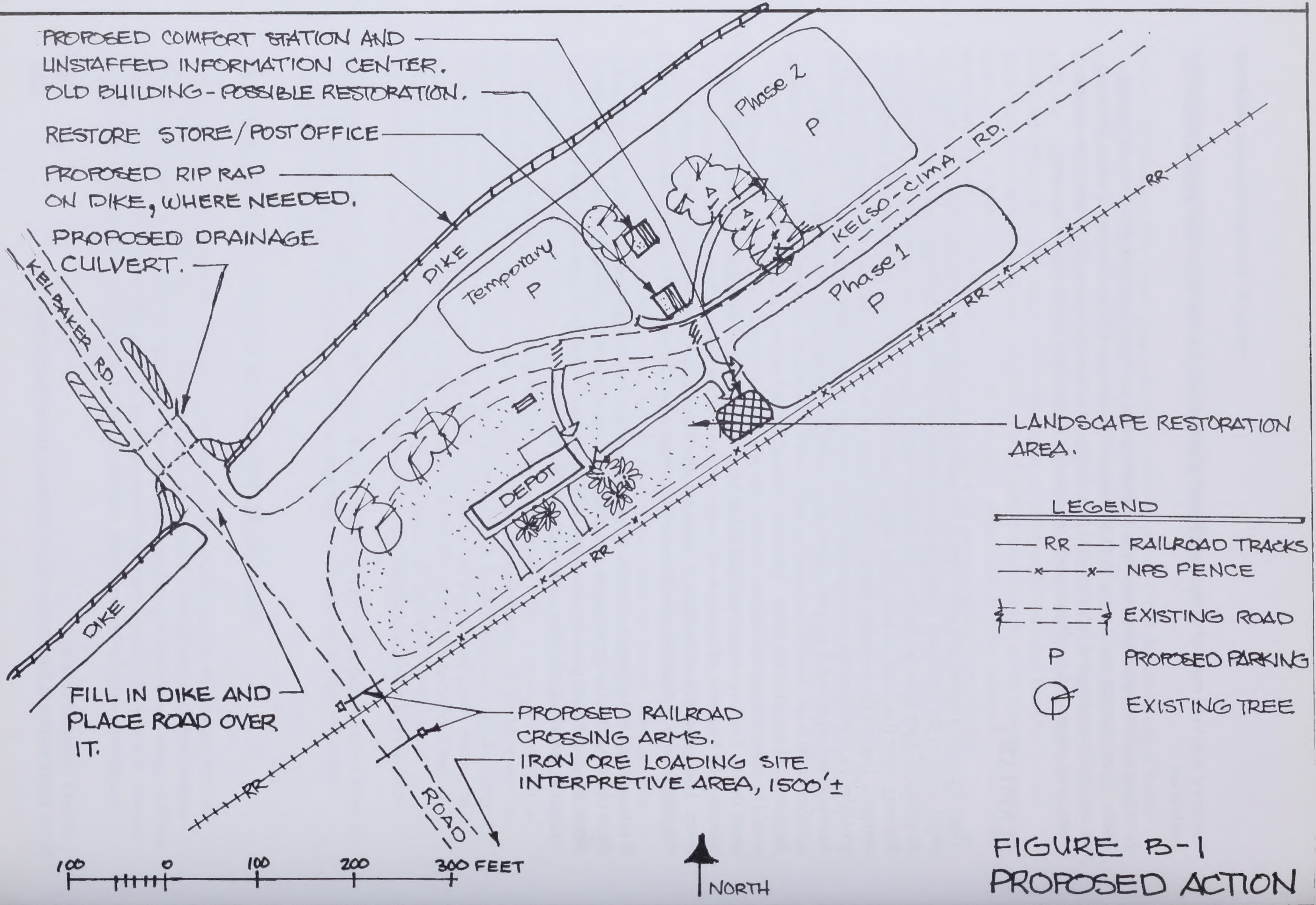

PROPOSED COMFORT STATION AND UNSTAFFED INFORMATION CENTER.
OLD BUILDING - POSSIBLE RESTORATION.
RESTORE STORE/POST OFFICE
PROPOSED RIP RAP ON DIKE, WHERE NEEDED.
PROPOSED DRAINAGE CULVERT.
KELBAKER RD.
DIKE
Temporary P
Phase 2 P
KELSO-CIMA RD.
Phase 1 P
RR
DEPOT
LANDSCAPE RESTORATION AREA.
DIKE
FILL IN DIKE AND PLACE ROAD OVER IT.
PROPOSED RAILROAD CROSSING ARMS.
IRON ORE LOADING SITE INTERPRETIVE AREA, 1500'±
ROAD
100
0
100
200
300 FEET
NORTH
LEGEND
RR — RAILROAD TRACKS
—x—x— NPS FENCE
EXISTING ROAD
P PROPOSED PARKING
EXISTING TREE

FIGURE B-1
PROPOSED ACTION

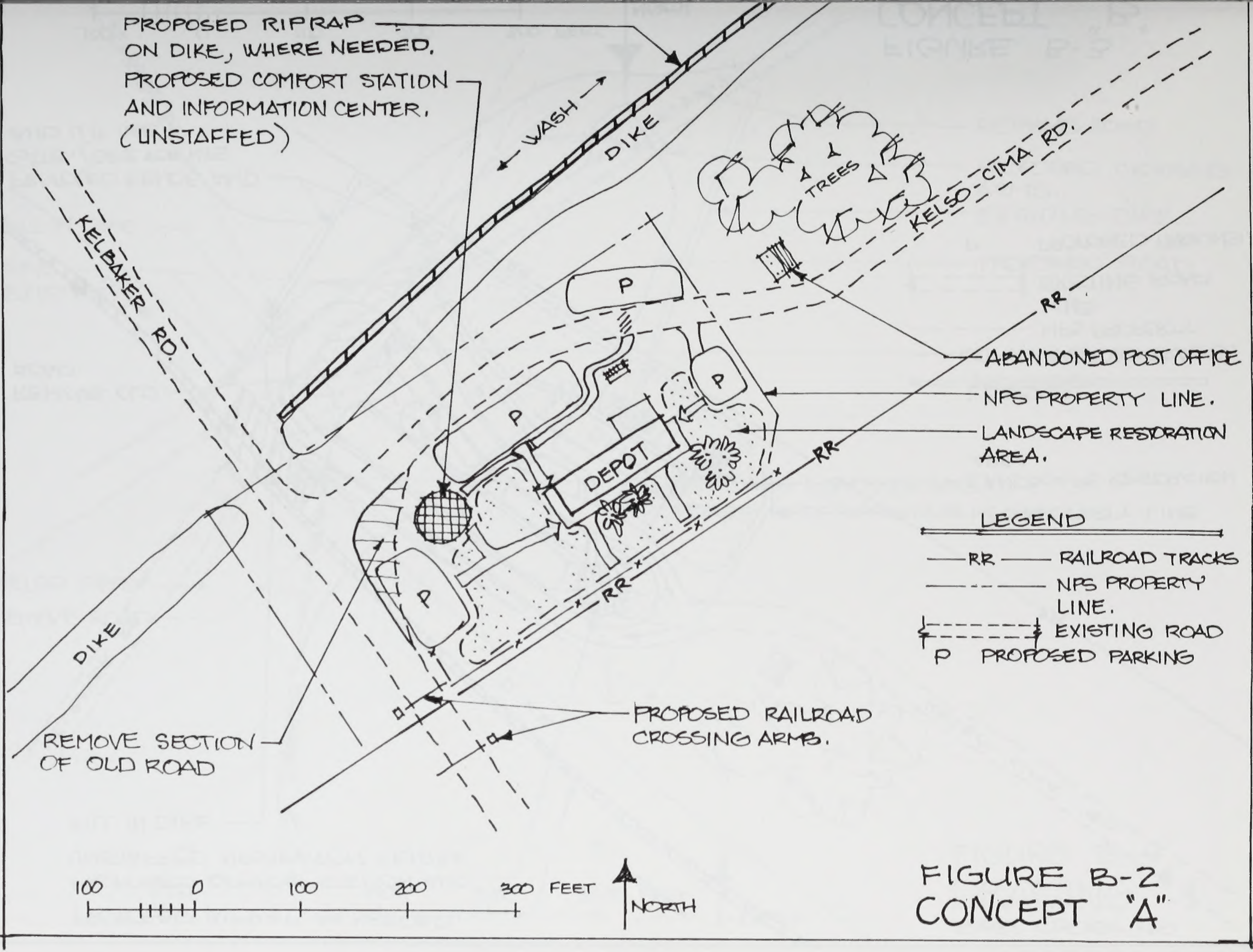


FIGURE B-2
CONCEPT "A"

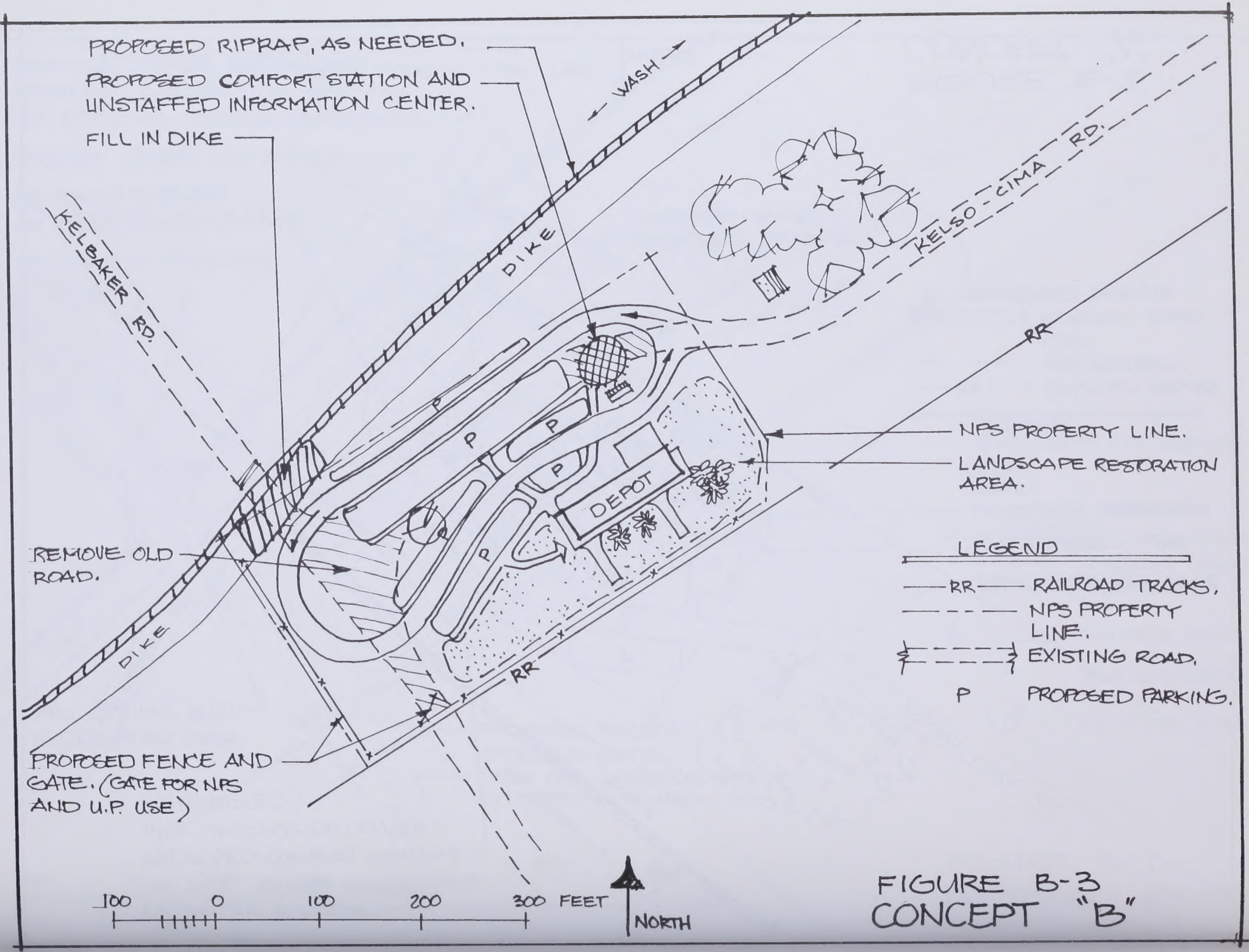


FIGURE B-3
CONCEPT "B"

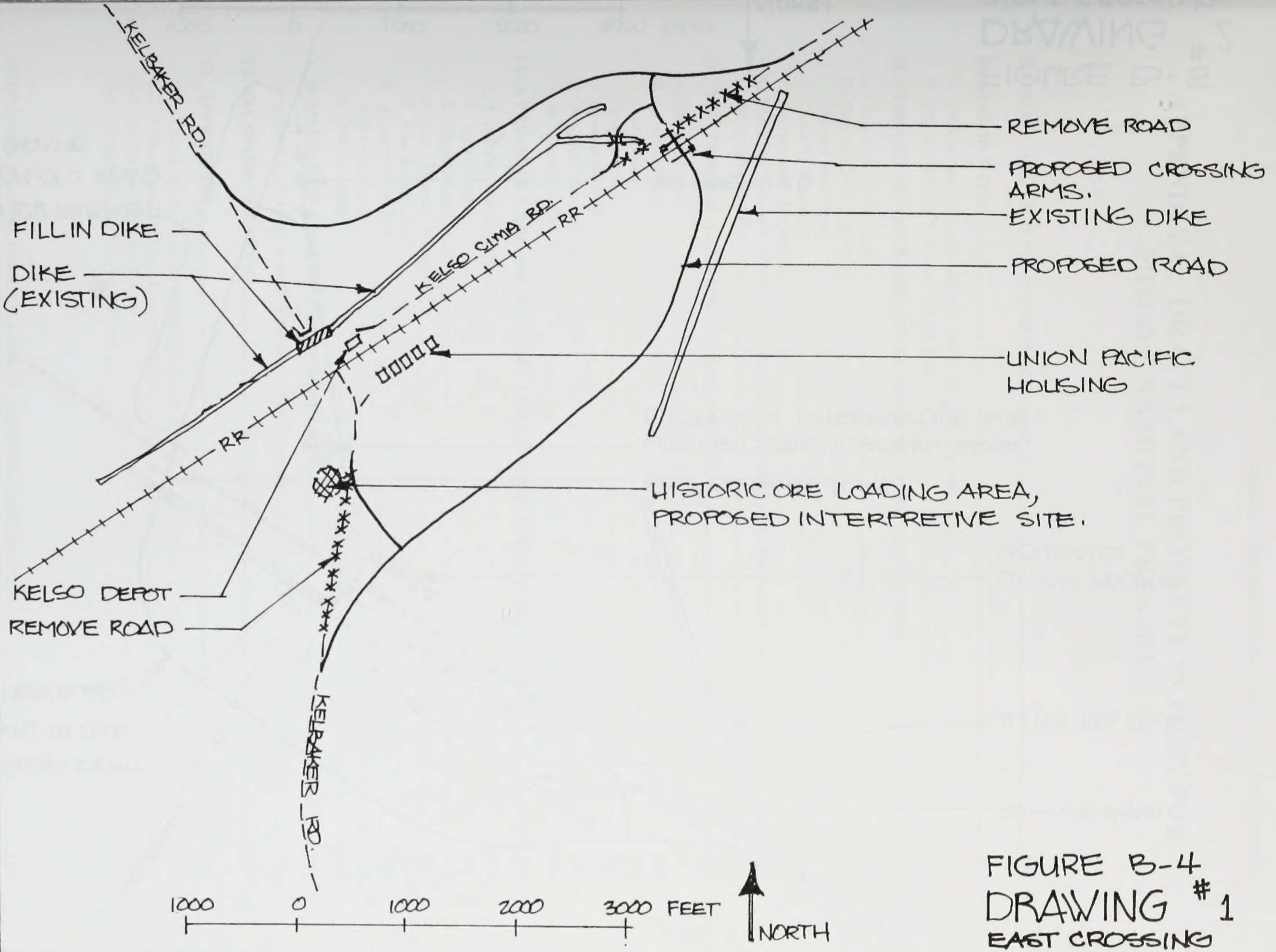


FIGURE B-4
DRAWING #1
EAST CROSSING

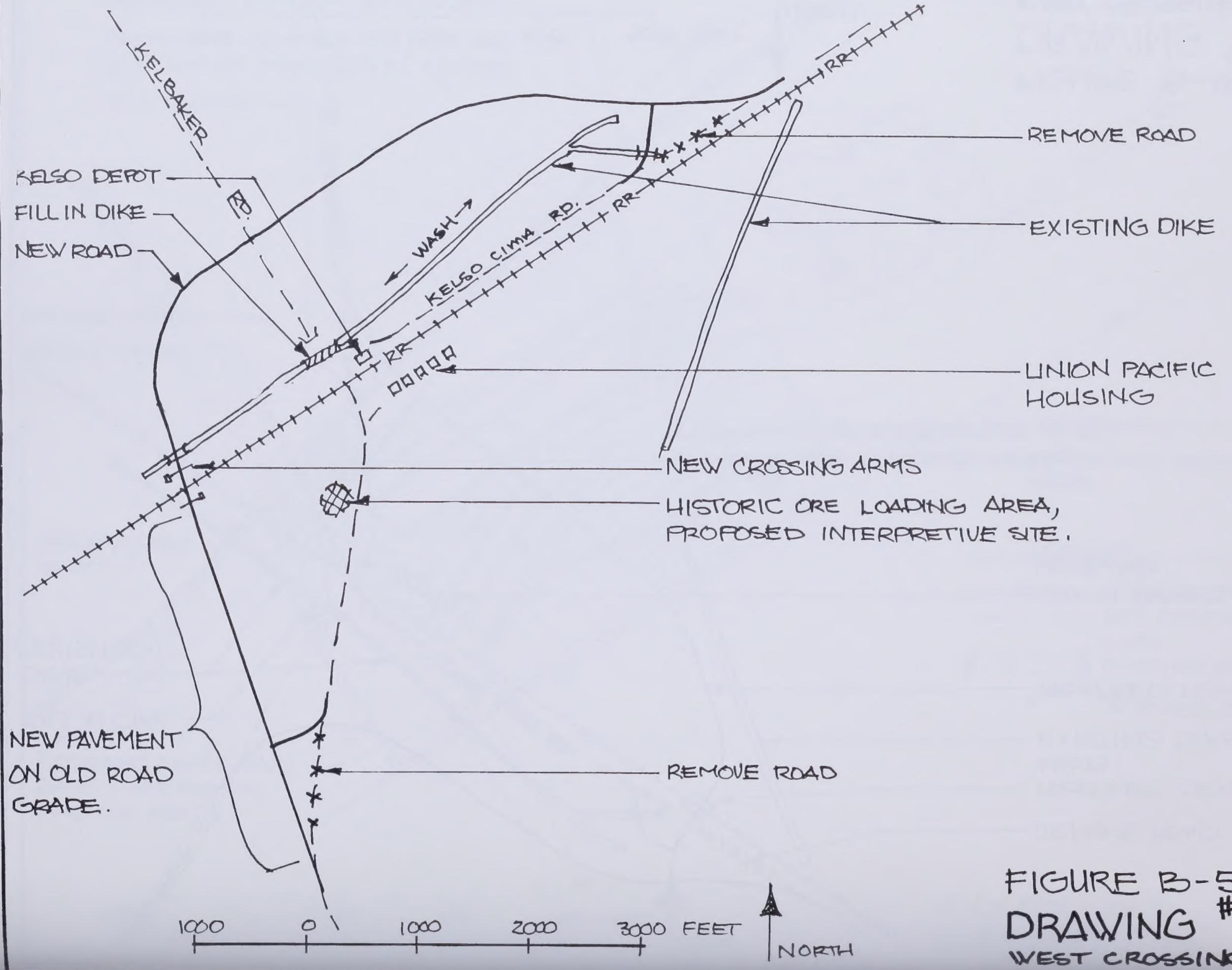


FIGURE B-5
DRAWING #2
WEST CROSSING

APPENDIX C: DRAFT LAND PROTECTION PLAN FOR MOJAVE NATIONAL PRESERVE

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LAND PROTECTION PLAN SUMMARY

as of 10/29/97

Current Land Ownership Within Boundary:

Mojave National Preserve has approximately 285.47 total miles of boundary, including 35.11 miles on the detached Clark Mountain Unit.

	Acres	
Federal		**1,373,018**
State of California		**44,012**
School sections	*36,502*	
Calif. Fish and Game	*139*	
Dept. Parks and Recreation	*5,152*	
Univ. of California	*2,219*	
Private		**172,039**
Catellus (Santa Fe Pacific)	*85,318*	
Union Pacific Railroad	*1,379*	
Other private	*85,342*	
TOTAL		**1,589,164.80**

Tracts Remaining to be Protected:

There are 2,147 private parcels owned by 1,235 separate owners, plus 57 parcels owned by the State of California.

Proposed Protection Methods:

Interim — Cooperative Agreements, Regulation
Permanent — Fee Acquisition, Regulation, Agreements

Funding Status:

No funds have been appropriated or expended for land acquisition.

Top Priority:

Tract	Acres	Reason for High Priority
Kelso Depot area	290	Potential development that would conflict with historic scene of the restored depot.

Status of Environmental Compliance: Categorically excluded.

Status of Jurisdiction: Proprietary

I. INTRODUCTION

A. DEPARTMENTAL AND NPS POLICIES ON LAND PROTECTION

The use of the federal portion of the Land and Water Conservation Fund (LWCF) is governed by a policy statement issued in May 1982 by the Department of the Interior (47FR19784). The policy requires that each agency using the fund will:

1. Identify the lands or interests in lands that need to be in federal ownership to achieve management unit purposes consistent with published objectives of the unit.

2. Use, to the maximum extent practical, cost-effective alternatives to direct federal purchase of private lands, and, when acquisition is necessary, acquire or retain only the minimum interests necessary to meet management objectives.

3. Cooperate with landowners, other federal agencies, state and local governments and the private sector to manage lands for public use or protect it for resource conservation.

4. Formulate, or revise as necessary, plans for land acquisition and resource use to assure that the socio-cultural impacts are considered and that the most outstanding areas are adequately managed.

In response to this policy, the National Park Service published a final interpretive rule on May 11, 1983 (48FR21121). That rule requires that the National Park Service develop a land protection plan for each unit of the National Park system that contain nonfederal lands within the area's authorized boundary.

The purpose of the plan is to identify methods of assuring the protection of the natural, historic, scenic, cultural, recreation or other significant resources and to provide for adequate visitor use. The plan will be prepared in compliance with relevant legislation, other Congressional guidelines, Executive Orders, and departmental and National Park Service policies. The plan will be clear and concise, prepared with public participation and include full consideration of the alternatives available for land protection. Plans will be updated as necessary to reflect changing conditions.

The major issues to be addressed by the plan are the uses that would be compatible on the remaining nonfederal tracts, the protection methods most usefully employed to avoid incompatible uses and protect park resources, and the relative urgency of protection action on the various tracts.

Land protection plans are intended to provide general guidance for long-range planning and budgeting, subject to the availability of funds and other constraints. They are not intended in anyway to diminish the rights of nonfederal landowners, nor do they constitute an offer to purchase lands or interests in lands.

B. NEED FOR THE PLAN AND MAJOR ISSUES

Mojave National Preserve contains nonfederal lands within the boundaries authorized by Congress. On October 31, 1994, Congress created the Mojave National Preserve, setting aside approximately 1.6 million acres. Most of the new park lands were already public lands, previously administered by the Bureau of Land Management, and jurisdiction over which was transferred to the National Park Service.

The major issues that the Land Protection Plan for each unit addresses are:

1. The extent to which existing and potential uses of private lands and access for such use through and across federal park lands, may adversely affect the natural appearance of the unit, the protection and restoration of natural systems, wilderness integrity and values and cultural sites, objects and structures.

2. The extent to which existing and potential uses of private lands area may preclude or limit visitor enjoyment of park resources or may conflict with the aesthetic and ecological conditions.

3. The extent to which mining activity may affect park values and resources.

4. The extent to which existing or potential uses of private lands, and access for such uses through and across federal lands may affect species listed as threatened or endangered by the U.S. Fish and Wildlife Service and habitat listed as critical to the survival of the desert tortoise (*Gopherus agassizii*).

5. The anticipated effectiveness of federal, state and local regulations in achieving preservation objectives on nonfederal lands within the unit.

6. The anticipated effectiveness of agreements in achieving preservation objectives on nonfederal lands within the units.

7. The anticipated effectiveness of less-than-fee acquisition in achieving protection of preserve resources on nonfederal lands within the units.

8. The potential for reservation of use and occupancies when acquiring lands from current owners.

9. The relative urgency of protection among the several areas in the unit with nonfederal lands.

II. PURPOSE OF THE PARK AND RESOURCES TO BE PROTECTED

A. PURPOSE OF THE PARK

The Act of August 25, 1916, the Organic Act of the National Park Service (16 U.S.C. 1), prescribed that the "fundamental purpose of...parks...is to conserve the scenery and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." In the Act of August 18, 1970, Congress declared that the Organic Act provisions, including the statement of fundamental purpose, shall apply to all areas of the National Park System "to the extent that such provisions are not in conflict..." with the statute that specifically applies to that particular area. (16 U.S.C. 1c.(b))

In 1978 Congress amended the 1970 Act, cited above, to state that the "authorization of activities" in parks "shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

Approximately half the lands in Mojave National Preserve are designated by law as wilderness, by the Act of October 31, 1994. The Wilderness Act of 1964 further prescribes the purpose of the wilderness-designated lands. That purpose is to preserve lands in their natural condition "for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness." The Wilderness Act defines wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain,...an area of undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions..."

In summary, the purpose of parks is to preserve the natural and cultural resources so that they can be interpreted, understood and enjoyed by present and future generations.

The development of this "Land Protection Plan" is being done in conjunction with the Draft Environmental Impact Statement / General Management Plan. An initial component in the development of a general management plan is the discussion and description of the specific park purpose and significance. Elsewhere in this Draft Environmental Impact Statement is a complete description of the purpose and significance for the preserve. Please refer to that section of the document for the specific unit purpose and significance.

B. RESOURCES TO BE PROTECTED

NATURAL RESOURCES

Mojave National Preserve was established to preserve an ecologically diverse, yet fragile desert ecosystem, comprised of scenic, geologic and wildlife values unique not only to the Mojave, but the Great Basin and Sonoran desert environs as well. This transition zone, ranging from nine hundred to nearly eight thousand feet in elevation, embraces a plethora of landforms: cinder cones, sand dunes, dry lake beds, alluvial fans, mountain ranges, table-top mesas, large desert bajadas (alluvial fans) and valleys. This harsh Mojave desert landscape provides refugium for over one thousand plant and animal species, including threatened and endangered species.

Geology and Soils

Because of the multiple stages of igneous activity, metamorphism, and the many episodes of deformation resulting in thrust faulting, the geology of Mojave National Preserve is very complex and diverse. These three types of geologic forces have produced numerous types of rock, which range in age from Precambrian to the present.

The Mojave is characterized by isolated mountain ranges and ridges separated by alluvium-filled, irregular large valleys. Dividing Mojave National Preserve in half is the northeast trending Providence-Mid Hills-New York Mountain ranges. The principal valleys within the preserve include: Ivanpah Valley, Kelso/Cedar Wash, Lanfair Valley, Devils Playground, Piute Valley and the northern area of Fenner Valley. Ivanpah Valley and Kelso/Cedar Wash line up in a northeasterly to southwesterly fashion, but drain in opposite directions because of an inconspicuous northwest trending divide near the town of Cima. Both Lanfair and Piute Valleys drain via Piute Wash into the Colorado River. The remaining valleys have self-contained drainage systems as represented by playa lakes such as Soda and lvanpah.

A wide array of soils comprise Mojave National Preserve. Examples include: soils with sandy textures with gravel and cobble cimas; soils with medium textures; soils with calcium carbonate (e.g. caliche) accumulations; fine textured soils found in playa prone areas; soils with a developed horizon reflecting age or formation during a different moisture regime; shallow soils; and upland soils. The park also contains escarpments, ephemeral streams, a large area of dunes and a lava flow area (e.g. Lava Beds).

Vegetation

The wildlife and vegetative resources of Mojave National Preserve reflect the mingling of three major North American Deserts: the Great Basin, Mojave, and Sonoran Desert. The preserve consists primarily of vegetative attributes of the Mojave Desert but contains floral species of the Great Basin, Sonoran and even some elements of the California Coastal Zone.

Mojave National Preserve is considered a unique floristic area. Many plant species are distributed only within its boundaries; while other areas such as the New York Mountains contain species of manzanita, California lilac, and oak and silk tassel which are normally associated with coastal California. The Mid Hills have significant stands of Great Basin sagebrush and Utah juniper. The strongest association however, is with the Sonoran Desert whose northernmost range is often recognized to intermingle with the southern border of the park. Sonoran plant species such as teddy bear cholla and smoke tree are found extending a dozen or more miles into the southeast portion of Mojave National Preserve.

Common elsewhere in the desert and also present within the preserve are the playas, saltbush, creosote-covered flats and alluvial fans, and Joshua tree woodlands. There are also many important unique or rare habitats within the Mojave. The preserve is unusual in the complexity and density of the Joshua tree, Mojave yucca, and Spanish bayonet communities, which are represented on Cima Dome. The quality and sheer vastness of the Joshua tree forest on Cima Dome is unparalleled anywhere in the world. There are seven different types of wash plant species associations including catclaw acacia, smoke trees, and desert willows. Higher elevations support grassland, sagebrush, blackbrush, pinyon-juniper woodlands as well as unique remnant habitats containing small white fir forests, and pinyon-junipers with oak in the higher elevations. The Piute Creek desert oasis also supports a very fragile and limited community.

Wildlife

The intermingling of the three desert environments has produced approximately thirty-five wildlife habitat types. The diverse habitats support about three hundred species of wildlife. The literature documents thirty-six species of reptiles, two hundred and six species of birds and forty-seven species of mammals. A few of the most notable species include the gila monster, desert tortoise, Mohave tui chub, Mojave fringe-toed lizard, regal ring-necked snake, and desert striped whipsnake. Significant avian fauna include the Prairie Falcon, Bendire's Thrasher, California Thrasher, Gray Vireo, Golden Eagle, Lucy's Warbler, Mourning Dove and Gambel's Quail. The preserve has one of the more significant bat faunas of the California Desert. There are also populations of rock squirrels in pinyon-juniper woodland, a relict population of dusky-footed woodrats, mule deer, porcupines, mountain lions, and desert bighorn sheep.

Significantly, a large portion of the preserve is critical desert tortoise habitat. Some of the highest densities of tortoise are found in the Ivanpah Valley in the north end of the preserve. Areas that have been designated as critical habitat for desert tortoise will receive special consideration in considering uses, programs and activities that can be allowed within the preserve.

In its entirety, the California Desert contains no finer grouping of different wildlife habitats than in Mojave National Preserve, both from the standpoint of total number of species and the total number of animals. The Kelso Dunes, Granite, Providence, and New York Mountains, including Cima Dome exemplify the finest habitat types in California.

Scenery

Mojave National Preserve portrays some of the most scenic resources in the entire California Desert, which is unrivaled from the standpoint of sheer "diversity." In some instances jagged peaks protrude approximately three thousand feet above an intervening landscape consisting of sand dunes, flat-topped mesas, rolling hills, and red volcanic spires. Expansive stands of Joshua trees and yuccas are foreground features throughout much of the park, while barrel cacti and yellow teddy bear chollas dot the desert floor which flower in vivid hues of red and yellow. Cinder cones impart a lunar landscape to the preserve's northwest sector, while the Devils Playground defines a stark expanse of dune sand, indicative of the desert itself.

Pinyon pines and junipers cover the upper slopes of the higher ranges, while the perennial Piute Creek, toward the eastern boundary of the park, supports a lush riparian habitat for associated wildlife species. Fields of flowers during spring and smoke tree add an additional floristic effect to the washes, lava fields, and bajadas throughout the park. The annual spring flowering of Joshua Tree and Spanish Dagger are spectacular and are particularly showy on wet years.

CULTURAL RESOURCES

Prehistoric

A milder and wetter climate existed during the Pleistocene Epoch when the waters of ancient Lake Manly inundated much of the East Mojave region. The area in and around Mojave National Preserve provided diverse biological and geological resources that supported human occupation beginning approximately 12,000 years ago. Paleo-Native cultures lived on the lakeshores and subsisted on waterfowl, shellfish, native plants, and small and large game. At the end of the Pleistocene the region's climate became more arid and the lakes evaporated. Paleo-Native cultures gave way to smaller nomadic Archaic cultures that endured for several thousand years until the ancestors of the modern tribes emerged. Native cultures of the East Mojave include the Chemehuevi, Piute, and Mojave.

Numerous cultural artifacts found in Mojave National Preserve include projectile points and lithic scatters; mortars, pestles and roasting pits; pottery; pictographs and petroglyphs; cave dwellings and temporary camps; and burial sites. Shells indicate trade with coastal cultures. Pottery shards and evidence of mining for turquoise near Clark Mountain suggest trade with Pueblo cultures to the north and east. These trade activities established routes through the Mojave that were utilized until modern times.

Spanish Exploration

Father Francisco Garces, Franciscan priest and Spanish explorer, traveled through the East Mojave beginning in 1776 on his way to the Pacific Coast. Led by Mojave Indian guides, Father Garces traveled from Piute Creek through the New York and Providence Mountains to Soda Springs following what is now known as the Mojave Road. With the founding of the Spanish missions in California, travel across the Mojave Desert increased.

Westward Expansion

In the early 1800s, American fur trappers and explorers including Jedediah Smith, Kit Carson, and John C. Fremont ventured through the Mojave Desert. They viewed the harsh environment and vast open spaces they encountered as obstacles in their quest to get to and from the Pacific Coast.

Military

In the 1860s, the United States Government established a number of army posts along the Mojave Trail including Fort Piute, Camp Rock Springs, and Camp Cady. These posts were established in response to the increased number of Indian attacks on wagon trains and stagecoaches crossing the desert. By the late 1860s, disease, war, and displacement of Indians to reservations resulted in a drastic decrease in the Indian populations. As the native cultures were subdued, the need for military outposts lessened and the forts were abandoned. The ruins of these outposts can still be seen today.

A military presence was established again in the Mojave during World War II when General George S. Patton trained his troops and conducted war training throughout the California desert. Tank tracks and other scars from these activities are still visible on the desert floor.

Mining

The varied geology of the East Mojave attracted miners in the 1800s in search of gold, silver, zinc, iron ore and copper. The boomtowns of Hart, lvanpah, and Vanderbilt were established to serve the miners' needs.

Kaiser Steel Company established an iron ore mine in the South Providence Mountains in the 1940s. The successful mining operation created a boom in the nearby town of Kelso, which boasted a population of 1,500-people in its heyday. The ruins of these historic boomtowns and numerous abandoned mining sites can be found throughout Mojave National Preserve.

More recently, mining activities have included the extraction of not only gold but also volcanic cinders and rare earth elements utilized in manufacturing and high-tech research.

Ranching and Agriculture

Despite the harsh environment, cattle ranching has been a way of life in the East Mojave since the turn of the century. The Rock Springs Land and Cattle Company ran about 5,000 head of cattle in the early 1900s. Today, the OX Cattle Company, operated by the Oversons, maintains a ranching operation on part of the original Rock Springs site. The 71L Ranch, found at the southeast corner of the preserve, is operated by the Blair family. In addition there are several other smaller ranch operators.

In the early 1900s, homesteaders attempted dry farming of corn and beans in the Lanfair Valley. Due to low rainfall and difficulties in obtaining adequate water and in engaging in constant conflicts over water rights, their efforts were abandoned a decade later.

Railroads

Miners, ranchers and homesteaders of the East Mojave had a link to the outside world with the onset of the railroad in the late 1800s. Wealthy industrialists established private railroad lines from the desert to major shipping points. A railroad line between Salt Lake City and Los Angeles was completed in 1906 and the town of Kelso evolved as a stopover to resupply water for the steam locomotives and a rest stop for railroad crews and passengers.

In 1924, Union Pacific Railroad built a two-story Spanish style depot at Kelso which featured a telegraph office, overnight accommodations for railroad employees, a waiting room for passengers and a restaurant referred to as "The Beanery." The Kelso Depot was headquarters for the Vulcan Mine during the early to mid-1940s, which was the peak of its activities.

When the Vulcan Iron Ore Mine shut down in 1947 and rail services started to decline, Kelso's population dwindled. The depot closed in the mid-1980s. The Kelso Depot Fund has saved the historic structure from demolition by Union Pacific, and the building has been determined eligible for listing on the National Register of Historic Places.

RECREATIONAL RESOURCES

The natural and cultural resources of the preserve provide outstanding recreational opportunities for both first time and returning visitors. Present visitation is estimated at 300,000 annually.

The primary access to the preserve is on the county road system including the Kelbaker, Cima, Ivanpah, New York Mountains, Lanfair Valley, Cedar Canyon, and Providence Mountains/Black Canyon roads. The historic Mojave Road and other backcountry dirt roads provide opportunities for four-wheel drive and other rugged terrain vehicles.

The extensive wilderness and backcountry areas provide opportunities for primitive recreational activities as well as for solitude. The absence, in wilderness, of motorized/mechanized activities, the grand vistas and the limited visitation enable the hiking and backpacking visitor to enjoy a truly unique desert experience.

Sightseeing and photographic opportunities abound and include a diversity of natural and cultural resources. Natural resources include canyons, sand dunes, granite outcroppings, volcanic domes, cinder cones and an extensive botanical collection including a Joshua tree forest, generally accepted as the world's best and largest. Wildlife is abundant and this provides frequent opportunities for sightings and photography by wildlife enthusiasts. Cultural resources include historic boomtowns and mines, ranches and frontier forts as well as petroglyphs and pictographs from prehistoric cultures. The historic Mojave Road provides visitors the experience of traveling the original trade and travel route traversing this area.

The preserve offers camping opportunities at two developed sites and car camping at various locations along roads. The preserve is centrally located to visitors from Arizona, Nevada, and southern California and is close to several developed areas outside the preserve where lodging, restaurants, and other amenities can be found. A diverse interpretive program is being developed to provide natural and cultural oriented themes at various sites throughout the preserve.

C. PARK HISTORY AND OTHER FACTORS RELEVANT TO PROTECTION PARK RESOURCES

Mojave National Preserve was established by Congress on October 31, 1994, with the passage of the California Desert Protection Act (16 U.S.C. 410aaa-83). The authorized acreage of the Preserve identified in section 502 (1,419,800) was an estimate based on calculations done manually, and may not have included private lands in Lanfair Valley. Creation of a digital boundary allowed the acreage to be more accurately calculated. The boundary map submitted to Congress reflects a more accurate total preserve acreage of 1,589,165 acres of land included within the external boundary of the preserve. Whenever private lands anywhere within this external boundary are acquired, including those in Lanfair Valley, they would automatically become part of the preserve. Specific limitations and directions were provided by Congress in the act relevant to land acquisitions in the Mojave National Preserve. The following list summarizes to specific direction and cites the appropriate section of the act:

- Sec. 509a directs that the National Park Service determine validity of all unpatented mining claims and submit recommendations to Congress as to whether any valid unpatented or patented mining claims should be acquired, together with the estimated acquisition costs and the environmental consequences of mining.
- Sec 510b provides that persons holding grazing permits that are willing to convey base property to the United States be given priority over the acquisition of other lands within the preserve.
- Sec. 511 provides specific direction relevant to continued existence and maintenance of existing utility rights-of-way.
- Sec. 516 provides that lands owned by the state of California (except for State Lands Commission) may be acquired only by donation or exchange. This section also limits the acquisition to willing

sellers for all other landowners, unless ongoing or proposed development is determined detrimental to the integrity, or is otherwise incompatible with, the purposes of the preserve, and the owner is notified in writing and given opportunity to respond. This section also provides that development of single family residences is not incompatible with the purposes of the preserve.

Three provisions in the act that affect land acquisition are applicable to Mojave, as well as Death Valley and BLM wilderness areas:

- Sec. 707 directs the secretary to enter into negotiations with the State Lands Commission to exchange federal lands or interests for state school lands or interests that are within parks and wilderness areas.
- Sec. 710 provides that "lands or interests in lands acquired under" the California Desert Protection Act "shall be appraised without regard to the presence of a species listed as threatened or endangered pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)."
- Sec. 901 imposes a ceiling of $300,000,000 for all land acquisition costs associated with the three National Park Service administered areas (including Death Valley, Mojave and Joshua Tree) and the Bureau of Land Management administered wilderness areas created by the California Desert Protection Act.

National Park Service *Management Policies* (1988) provide that the National Park Service will seek to eliminate valid mining claims and nonfederal mineral interests in wilderness areas through acquisition.

D. MANAGEMENT OBJECTIVES

- Manage desert lands including wilderness more effectively.

- Participate cooperatively in the preservation of ecological units that extend beyond the preserve's boundaries.

- Manage visitation more effectively and reduce impacts associated with dispersed and poorly defined visitor use facilities.

- Educate preserve visitors regarding the NPS mission and the natural and cultural resources of the preserve.

- Improve the effectiveness of preserve operations.

- The preserve would perpetuate a sense of solitude for visitors.

- The preserve would perpetuate scenic landscapes. Landscapes viewed from scenic road corridors and developed areas should be free from recreational activities and facilities that distract from the scenic beauty of the landscape.

- Wilderness values would be protected in areas congressionally designated as wilderness. The Wilderness Act shall be referred to for guidance for wilderness areas.

- The preserve would perpetuate a sense of exploration and discovery by vehicle, foot, or stock animals within the backcountry of the preserve.

- The preserve would perpetuate the visitors' ability to view the night sky.

- The preserve would take an active stance in finding creative ways to increase the accessibility of NPS programs, facilities and experiences in a reasonable manner. Management would take an approach of providing access for all segments of the population, including the disabled, small children and senior citizens. This is to be done in coordination with the laws requiring the National Park Service to preserve and protect wilderness, and cultural and natural resources for the enjoyment of future generations.

- Partnerships would be pursued with representatives from gateway communities and local and tribal governments to consider ways in which communities and the parks can support each other. The National Park Service would promote economic growth of communities in ways that complement the preserve's management objectives.

III. NONFEDERAL LAND OWNERSHIP AND USE

A. DESCRIPTION

There are over 2,000 nonfederal land parcels within the boundaries of Mojave National Preserve totaling nearly 230,000 acres. In addition, there are hundreds of outstanding rights that are owned by individuals or corporations (water rights, mining claims, rights-of-ways, easements). The following discussion provides an overview of the nonfederal lands and interests that occur in the preserve.

1. California State Lands

a. School land

The State Lands Commission owns and manages land in the state for the benefit of the state. In the preserve, sections 16 and 36 of each township were once owned by the state. Some of these have since been sold or traded. When the preserve was established in 1994, the state owned all or portions of 88 sections totaling 51,568.40 acres. Section 707 of the act details a procedure whereby the secretary of the interior will negotiate an agreement with the State Lands Commission to exchange federal lands for "California State School lands or interests therein which are located within the boundaries of one or more of the wilderness areas or park system units designated by this Act." That agreement was signed by the state director of the Bureau of Land Management, acting on behalf of the secretary of the interior and the State Lands Commission on October 26, 1995. The Bureau of Land Management's state office in Sacramento is currently managing the program to exchange state school lands that are in parks or wilderness areas designated by the California Desert Protection Act. In early 1998, the first exchange occurred, resulting in the National Park Service receiving title to portions of 22 sections totaling 15,066 acres.

b. Department of Fish and Game

The State Department of Fish and Game owns one tract of land in the preserve, totaling 139.4 acres. This tract is at Piute Springs at the lower end where the old fort remains are located. Piute Creek is a perennial stream and presumably the purpose of the state's ownership is riparian habitat preservation and is consistent with the preserve mission.

c. Department of Parks and Recreation

The State owns and operates the Providence Mountains State Recreation Area (also called Mitchell Caverns) which is located within the boundaries of the preserve, north of I-40 off Essex Road. The state owns 5,152.26 acres at this location. This site is managed by the state under a cooperative agreement with the National Park Service. The state manages this area in a manner compatible with the purposes of the preserve.

d. University of California

The Regents of the University of California own and manage 2,218.70 acres of land in the Granite Mountains as a component of the university's reserve system. Congress designated the Reserve in the CDPA as the Granite Mountains Natural Reserve and specified that 9,000 specified acres (including the State ownership) be managed under a cooperative agreement between the National Park Service and the university to ensure the continuation of arid lands research and public education.

2. Catellus

Catellus Development Corp. manages a checkerboard of lands across the southern one-half of the preserve totaling 85,318.07 acres. These lands were originally granted to railroad companies in the 1800s by the federal government as an incentive to build the transcontinental railroad.

3. Private lands

Beginning about 1910, settlers established homesteads and attempted dry land farming in the east Mojave. Homesteads were established in many places, including Barnwell, Crucero, Goffs, Pinto Valley, and primarily in Lanfair Valley area where 200–250 patents were issued. By 1920 dry years had forced most homesteaders out. Less than 50 people are permanent residents in the preserve now, with most private tracts being mostly undeveloped. Major blocks of private land are found in the Lanfair Valley area where hundreds of parcels totaling over 70,000 acres occur. The remainder of private lands are scattered throughout the preserve. Total private land in the preserve, not including Catellus lands, is 85,533 acres.

4. Mining claims

a. Patented

Patented mining claim groups exist in about fourteen areas of the preserve, totaling approximately 1,350 acres. These are mining properties obtained under the 1872 Mining Law, where the owners have met the federal requirements to obtain title to the surface and subsurface estates. Mining on patented claims is subject to NPS regulations at 36 CFR Part 9A, the same as on unpatented claims.

b. Unpatented

The preserve was closed to new mineral entry on October 31, 1994 by the California Desert Protection Act. Claimants who had properly staked and recorded mining claims by that date may have a valid existing right to mine the minerals. However, Congress requires the National Park Service to determine the validity of all unpatented mining claims in the preserve. This is a lengthy, technical process that requires specially trained staff. In addition, claimants are required to pay annual maintenance fees to the Bureau of Land Management by August 31 each year to retain an ownership interest in their claims. Therefore, it is reasonable to assume that the number of unpatented claims will continue to decline each year as claimants cease to pay rental fees, or are unable to adequately demonstrate a discovery under the validity process.

As of January 1998, there were 836 claims in 62 groups totaling just over 19,000 acres.

5. Water rights

Initial research on outstanding water rights in the preserve at the State Water Resources Control Board in Sacramento revealed that there are approximately 110 appropriated water rights claims on 97 water sources (springs, seeps, streams, wells) in the preserve. Many of these were obtained by ranchers who lease grazing allotments.

6. Rights-of-way and easements

There are hundreds of easements and rights-of-way that exist in the preserve, many of which pose little or no threat to the protection of resources. Additional research over the next several years will have to be conducted in order to adequately document all the outstanding rights. Agreements will be sought where necessary to protect the park resources. Only in limited instances would acquisition of the interest be appropriate or warranted. The major right-of-ways that occur in the preserve are summarized below. Congress provided specific direction in section 511 of the California Desert Protection Act on the ones with an asterisk.

ROW HOLDER	ROW PURPOSE
AT&T	underground communications cable
Southern Calif. Edison*	above ground electric transmission line
Southern California Gas Company*	gas pipeline
Cal-Nev	oil pipeline
Molycorp*	waste water pipeline
Union Pacific	railroad

The county of San Bernardino contends that certain roads in the preserve are valid under RS-2477. The validity of this claim has not been determined. Any valid right-of-way would be included in future amendments to this land protection plan as appropriate protection strategies are identified.

7. Grazing permits

The California Desert Protection Act provides for grazing to continue under NPS management at no more than the levels existing on October 31, 1994. Nearly 90% of the preserve is encumbered by grazing allotments that were issued by the Bureau of Land Management prior to the act. Only three allotments are entirely within the preserve: Gold Valley, Round Valley and Colton Hills. The remaining allotments are partially in Mojave and partially on BLM land. The following is a summary of the existing allotments. Total animal unit months (AUMs) on NPS land at the establishment of the preserve was 37,000.

Grazing Allotment	Total Acres	% on NPS	Acres on NPS	Total AUMs	NPS AUMs
Clark Mountain	88,312	20%	17,662	1,872	371
Colton Hills	147,847	100%	147,847	2,877	2,877
Gold Valley	16,190	100%	16,190	1,152	1,152
Granite Mountains	276,125	95%	262,319	4,716	4,475
Kessler Springs	252,172	85%	214,346	8,016	7,615
Lanfair Valley	339,553	80%	271,642	12,168	11,560
Piute Valley (ephemeral)	33,468	44%	14,726	0	0
Round Valley	653	100%	653	27	27
Valley View	281,802	92%	259,258	8,485	8,069
Valley Wells	237,258	18%	42,706	4,644	853
TOTALS	**1,673,380**	**75%**	**1,247,349**	**43,957**	**36,999**

B. COMPATIBLE AND INCOMPATIBLE USES

The preservation of unimpaired natural systems, resources and cultural resources is the essential management objective of park units. Commercial uses generally are incompatible with the accomplishment of that objective. Residential uses in Mojave are specifically identified by enabling legislation as being compatible with the purposes of the preserve. Mining may potentially affect pristine desert scenery or wilderness values, and disrupt the natural system through additional vehicular access and noise, lights, odors, and possible reduction of water quantity, quality, and air quality.

DISCLAIMER

The land protection planning process requires that the National Park Service determine the activities that would be incompatible with park management objectives, IF such uses were proposed or carried out. The listing of incompatible activities in this LPP does not constitute a prohibition of such uses. The National Park Service has little existing regulatory authority to preclude such incompatible activities. Rather, the listing of incompatible activities is intended to provide a reasonable basis for determining where, and under what circumstances, the National Park Service would seek to acquire nonfederal lands.

COMPATIBLE USES

In the short term, some uses may be compatible, recognizing that such uses will not preclude ultimate accomplishment of management objectives. Given the scale of these uses in relation to park size, many impacts may be limited and temporary, and the lands and natural systems susceptible to restoration.

The following uses are considered to be compatible:

1. Occupancy of existing private dwellings at the current level, including such rights of use and occupancy on tracts that the seller has reserved as part of a sale to the United States.
2. Routine maintenance and repair of private dwellings and existing associated structures.
3. Modifications to existing structures that would maintain it as a single-family dwelling.
4. Replacement of roofing and siding with materials that are compatible with scenic values.
5. Reconstruction in kind of damaged or destroyed structures.
6. Replacement of a structure that is purposefully removed by a structure of equal size and design that serves the same purpose and occupies essentially the same site as the removed structure.
7. Erection of no trespassing signs, fences, and gates to prevent trespass.
8. Use of, or construction or installation of utilities, including roads, on federal lands to gain access to nonfederal property that provides the owner with reasonable use and enjoyment of their land, in accordance with section 708 of the California Desert Protection Act, with minimum disruption to federal lands.

9. Mining, in connection with valid existing rights, on mining claims, if such mining is under an NPS-approved plan of operations that meets the standards of approval of 36 CFR Part 9, Subpart A.

Approval of the National Park Service is required only for the latter two of the compatible short-term uses of private lands.

INCOMPATIBLE USES

The following uses of private property are incompatible with the management objectives of Mojave National Preserve, in both the short and long-term:

1. Activities that impair the integrity of a site, building or object that is listed on the National Register of Historic Places.

2. Mineral development activities that do not comply with all the requirements and standards specified under applicable NPS regulations.

3. Commercial activities, other than National Park Service regulated mining, such as businesses, stores, food and lodging establishments.

4. Erection of billboards.

5. Establishment of sites for the disposal of solid waste, whether hazardous or non-hazardous.

6. Activities such as removal of natural vegetation, earth moving or the like that significantly disrupt natural or cultural resources, or wilderness values.

7. Activities that create a hazard or that endanger the safety of park staff or visitors.

C. ACQUISITION HISTORY

When Mojave National Preserve was established on October 31, 1994, by the California Desert Protection Act, the existing federal lands that were under the management of the Bureau of Land Management, were transferred to the National Park Service. However, as identified under section A above, thousands of acres of land were in nonfederal ownership. Since passage of the act, one parcel of land has been donated to the preserve, but no funds have been expended for acquisition. The number of acres acquired since 1994 is as follows:

Acquisition Method	Acquired Acres
Purchase	0
Complaint in Condemnation	0
Declaration of Taking	0
Donation	94
Exchange	15,066
TOTAL FEDERAL ACRES	1,373,018
NONFEDERAL ACRES REMAINING	216,051
TOTAL ACRES IN PRESERVE	**1,589,164.80**

D. ACQUISITION CEILING

Sec. 901 of the California Desert Protection Act imposes a ceiling of $300,000,000 for all land acquisition costs associated with the three National Park Service administered areas (including Death Valley, Mojave and Joshua Tree) and the Bureau of Land Management administered wilderness areas created by the act.

IV. AVAILABLE LAND PROTECTION AND ACQUISITION OPPORTUNITIES

A. LAND PROTECTION OPTIONS

A number of land protection alternatives have been considered in arriving at the recommended methods. Factors influencing the methods considered and selection of the recommended plan include cost-effectiveness, long term goals, degree of compatibility of private ownership, the type of jurisdiction, and consideration for long established owners. The preferred alternative for land protection must assure preservation and restoration of the natural environment, protection of historic and prehistoric values, and enhance public enjoyment of the parks.

Potential protection alternatives are discussed below.

1. AGREEMENTS

Agreements are legal instruments defining administrative arrangements between two or more parties. The instrument can provide for the exchange of services or benefits between the parties. Terms of agreements relevant to land protection might include:

a. Acceptable and unacceptable land uses.

b. Management of natural and cultural resources.

c. Responsibility for maintenance.

d. Law enforcement responsibilities (including emergency response and search and rescue)

Agreements are most useful as interim land protection methods where there is a coincidence of interests between the parties. Because they can be terminated by either party, agreements are generally not acceptable as long term protection methods, particularly in the case of lands intended for preservation in their natural state. They can be very useful as short term protection instruments. They may have some application for both private and public lands.

The California Desert Protection Act requires the preserve to enter into cooperative agreements for the following activities:

- management of the Soda Springs Desert Studies Center by the California State University Consortium (sec. 514)
- management of the Granite Mountains Natural Reserve by the University of California (sec. 513)
- maintenance of an electric transmission line by Edison Co. (sec. 511)a
- maintenance of a gas line by Southern California Gas Co. (sec. 511b)

2. REGULATIONS

Local Land Use Regulations

Private lands in the preserve fall under the jurisdiction of San Bernardino County. The county adopts and enforces land use regulations that control the type and density of land use and development on private property, and ensure adherence to basic public health and safety standards. Regulation is intended to provide generally for the control of economic uses of land and to mitigate to the extent possible the adverse effects of such uses. It is not an appropriate or useful long-term protection method for lands intended for preservation or restoration of natural conditions. However, land use regulation does have potential as an interim protection method for developed areas planned for restoration but where land acquisition is expected to require many years.

National Park Service Regulations (36 CFR Parts 1–5 and 7)

Mojave National Preserve is an area of proprietary federal jurisdiction. The level of jurisdiction that the United States holds on its lands is immaterial to the ability of the United States to manage and protect federal lands. However, in areas of proprietary jurisdiction, such as Mojave National Preserve, the National Park Service decided in rulemaking that regulations in 36 CFR Parts 1 through 5 and 7 will apply only to federal lands. An exception, adopted on July 5, 1996, permits the application of NPS rules in 36 CFR Parts 1–5 and 7 to nonfederal lands in a proprietary jurisdiction park, if such nonfederal lands are subject to a written agreement with the owner.

In addition, if the state of California ceded some, or all, of its jurisdiction over nonfederal lands in Mojave to the United States, then ten of the NPS regulations at Parts 1–5 and 7 would apply to conduct on private lands. Even then, the applicable regulations deal with wildlife protection, fires, disorderly conduct, weapons and similar conduct. The National Park Service possesses no general regulations on "land use" or development that would apply to the nonfederal lands even if Mojave were an area of concurrent or exclusive jurisdiction.

National Park Service Regulations (36 CFR Parts 6 and 9)

National Park Service regulations at 36 CFR Part 6 (Solid Waste Sites) and at 36 CFR Part 9A (Mining Claims) apply to all lands in every park without regard to the level of jurisdiction that the United States holds over an area. Parts 6 and 9 apply to the nonfederal land within Mojave National Preserve. The application of 36 CFR Parts 6 and 9 would prohibit or otherwise restrict certain proposed land uses on nonfederal (and federal) lands within the preserve. Parts 6 and 9 of 36 CFR provide a certain level of resource protection, short of acquisition. Section 519 of the California Desert Protection Act (16 U.S.C. 410aaa-59) states that, until acquired by the United States, nonfederal lands within the boundaries of National Park System units designated or enlarged by the Act are not "subject to any of the rules or regulations applicable solely to the Federal lands within such boundaries..." The rules at 36 CFR parts 6 and 9 apply to all lands within areas of the National Park System boundaries and are not applicable solely to federal lands within such areas. Thus, the application of Parts 6 and 9 to nonfederal lands within the boundaries of Mojave National Preserve does not conflict with Section 519 of the California Desert Protection Act.

Regulations at Part 9, in particular, generally provide for the control of mining uses and to mitigate, as far as possible, the adverse effects of such activity on parks. Since the primary objective of the preserve is to preserve and restore natural systems, the conduct of mining, no matter how closely controlled or regulated, may be inconsistent with management objectives in some places. Regulation of mining has great value as an interim protection method in the event that more effective methods are not implemented in the future.

Regulations at Part 6 prohibit the establishment of new sites for the disposal of solid waste on any lands with the preserve, except for sites that generate waste solely from NPS activities.

U.S. Fish and Wildlife Service Regulations

U.S. Fish and Wildlife Service regulations at 50 CFR Part 17 implement the provisions of the Endangered Species Act (16 U.S.C. 1531, et seq.). These regulations prohibit persons from causing "harm" to federally-listed species. The desert tortoise (*Gopherus agassizii*), and habitat listed as "critical" to it, are found within Mojave National Preserve. "Harm" is defined to include significant habitat modification or degradation that actually kills or injures wildlife. The Endangered Species Act prohibits persons from taking, including "harming" listed species. However, persons may obtain a permit from the secretary of the interior to "take" listed species, "if such taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity." (16 U.S.C. 1539(a)(1)(B)).

Persons proposing to develop nonfederal lands within Mojave National Preserve that may result in harm to desert tortoise, or habitat listed as critical for desert tortoise, need to obtain a permit from the U.S. Fish and Wildlife Service prior to undertaking such development. This permitting process, while not aimed at controlling the use of land, could affect the methods and extent to which a person may develop lands in the Park where desert tortoise, or their habitat exist.

3. LESS-THAN-FEE ACQUISITION

Less-than-fee acquisition involves acquiring only a portion of the rights of ownership of a tract of land. For example, scenic easements may be acquired to protect landscapes by limiting the owner's use of his land, or rights-of-way may be acquired to permit construction of roads, trails, pipelines, etc. The primary value of less-than-fee applications in park situations is where some degree of private economic activity, e.g. farming, ranching, etc., is consistent with park objectives.

In some Park Service administered areas, where preservation of a pastoral historic scene is a primary management objective, scenic easements represent a highly desirable form of protection method, permitting continuation of agricultural land uses which contribute to the purposes of the unit. However, in the case of Mojave National Preserve, these objectives are not identified in the legislation, and therefore, less-than-fee instruments have limited utility.

4. FEE ACQUISITION

Fee acquisition is appropriate where the park objectives are preservation and restoration of the natural systems, and there are no compatible private land uses.

B. ACQUISITION OPTIONS

1. PRIVATE LANDS

The National Park Service can acquire interests in private land through several different methods.

a. Purchase with donated or appropriated funds.

b. Donation of lands or interests in land. Landowners with substantial taxable incomes are sometimes interested in this method as the Internal Revenue Code allows certain tax deductions for donation of land or interests in land for approved conservation purposes, including National Parks. Landowners should consult their accountants and attorneys for specific tax advice on contemplated donations.

c. Bargain Sale. A bargain sale is a partial donation where the landowner agrees to sell for less than full value and the difference may be treated as a charitable contribution that may provide tax benefits.

d. Exchange. Land exchanges offer surplus federal lands elsewhere in California for property in the parks. The feasibility of this type of exchange is dependent on the availability of other federal lands and its prospective utility to the landowner.

e. Condemnation. The federal government has the authority to acquire private property through the Federal Court system when needed for public purposes or to prevent resource damage. This method is used where the owner and the Park Service cannot reach agreement on price. It is also used in some cases to clear title or where landowners are unknown or cannot be located. Just compensation is determined through the judicial process.

f. Acquisition with Reservation of Use and Occupancy. Owners of developed properties can in some cases sell their property to the Park Service and at the same time reserve the property's use for either a period of up to 25 years or for life. The purchase price is reduced to account for the reserved period of continued use.

2. PUBLIC LANDS

Although Congressional guidelines on the acquisition of lands owned by state and local agencies generally favor donation, the policy toward state school sections permits acquisition by either exchange or purchase, with a preference for the use of exchange. State school lands in Mojave National Preserve were specifically identified in the California Desert Protection Act as priority for exchange for excess federal property.

V. SUMMARY OF ACQUISITION PROCEDURES

The Division of Land Resources assigned to the Pacific Great Basin Support Office in San Francisco is responsible for carrying out the land acquisition program. It will be guided by the Land Protection Strategy for each park unit as adopted through this planning effort and approved by the Regional Director.

The National Park Service is required by Secretarial Order 3127 to conduct a site assessment for hazardous materials on all properties being considered for acquisition. This process begins with a certified inspector completing a Level I checklist. If no evidence of previous hazardous materials use exists on the property or in the county, state or federal records, the property is cleared for acquisition. If contamination is discovered or suspected, samples may be collected and analyzed at a licensed laboratory. Cleanup costs are considered the responsibility of the landowner.

The Park Service will obtain, at its expense, a preliminary policy of title insurance for each property which will identify the owner or owners of record and all encumbrances, such as mortgages, liens, judgments, right-of-way or other easements, affecting the property's title.

Each property will be appraised by an independent contract appraiser. The landowner and/or his or her representative will be offered an opportunity to accompany the appraiser on the inspection of the property in order to afford the owner an opportunity to point out significant features of the property.

To assure the quality of appraisals, a staff appraiser will review all reports for compliance with proper appraisal procedures and check such elements as the thoroughness of the research performed and whether or not the appraiser has afforded the landowner the opportunity to accompany the appraiser.

Appraisers will be required to furnish an objective estimate of the "Fair Market Value" of the lands being appraised. The Uniform Appraisal Standards for Federal Land Acquisitions defines Fair Market Value as "The amount in cash, or on terms reasonably equivalent to cash, for which in all probability the property would be sold by a knowledgeable owner willing but not obligated to sell to a knowledgeable purchaser who desired but is not obligated to buy."

As soon as possible after the appraisal of a property has been received, reviewed, and approved, the Service will submit to the owner, subject to the availability of funds, a written offer which will not be less than the Service's approved appraisal of the fair market value of the property. The owner will be provided with a copy of the Services' appraisal upon request. Assuming that a mutually acceptable purchase price is agreed upon, closing will normally be completed by a local title company acting as escrow and closing agent within 6 to 8 weeks of signature by the owner and the Park Service of an Offer to Sell.

It is the responsibility of the seller to convey clear title to the property being acquired. Under Public Law 91-646, the Park Service may reimburse sellers for expenses incurred such as:

1. Recording fees, transfer taxes, similar expenses incidental to conveying the real property.

2. Penalty cost for prepayment of any pre-existing recorded mortgage entered into in good faith encumbering the real property.

3. The pro rata portion of real property taxes the owner paid to cover the period after title was vested in the United States.

The Park Service may pay other similar expenses to the extent they are fair and reasonable, but the Service will not pay for costs necessary to clear defects in title to the property.

The Park Service will make every effort to seek negotiated settlement wherever possible; however, if this is not possible, eminent domain proceedings may be initiated.

Eminent domain proceedings are initiated by the filing of a complaint in condemnation in Federal Court. There are two general types of condemnation: complaint-only and complaint with a declaration of taking. The National Park Service generally uses the complaint-only type of condemnation to acquire land. In this type of action, title to the land does not pass to the government until the court or jury has determined the amount of just compensation and this amount has been paid to the owner. Eminent domain proceedings may be employed to resolve title problems or clear title, or when negotiations are unsuccessful and Fair Market Value is to be determined by the court.

In addition to the complaint in condemnation, declarations of taking are used where title to the land must be vested in the United States immediately in order to prevent resource damage or to clear title to land after a negotiated agreement has been reached with the owner.

A declaration of taking vests title to property in the United States immediately upon filing papers in the court and the deposit of an estimate of just compensation. A portion of this deposit may be withdrawn by the owner as approved by the court.

ACQUISITION OF LESS-THAN-FEE INTERESTS (EASEMENTS)

The procedure for acquiring less-than-fee interest is the same as that described above for acquisition of fee interest except for the fact that the owner does not relinquish title and possession of the property.

VI. RECOMMENDATIONS

This "Land Protection Plan" recommends that the National Park Service acquire most nonfederal lands within the preserve in fee, except for state lands. State school sections are actively being exchanged for federal surplus property outside the preserve in accordance with CDPA direction. Other state lands would be considered for exchange if the state expressed an interest.

The National Park Service has considered alternative means of land protection and concluded that only in limited instances would they meet the long-term management objective of the preserve, which is the preservation and restoration of lands in their natural condition, and the protection of cultural resources.

Highest priority for acquisition would be assigned to tracts in wilderness that are threatened with development, and to tracts in critical desert tortoise habitat. However, the single highest priority is nonfederal lands in the vicinity of the Kelso Depot, where development may occur that would detract from the historic scene and the value of the proposed depot restoration as a major visitor access site.

To the extent lands offered for sale may exceed the funds available to the National Park Service to acquire them, the National Park Service will give preference to acquisition according to the priority list that follows. There is no expectation that tracts can be acquired only in the order shown. These areas contain the greatest number of tracts, most of which are undeveloped and are in areas of high visitor use where development would be most apparent and disturbing to the scenic values. Developed tracts in the Lanfair Valley area are the lowest priority, unless attempts are made to develop beyond single family homes.

National Park Service priority for acquisition are as follows:

Priority 1: Nonfederal lands around the Kelso Depot, where development may occur that would detract from the historic scene and the value of the proposed depot restoration as a major visitor access site.

Priority 2: Tracts of land that lie within designated wilderness for which any development is proposed and imminent.

Priority 3: Any tract lying within the external boundaries of a designated wilderness area, for which the owner seeks to gain access under section 708 of the California Desert Protection Act by the construction of a road, or utility line across federal wilderness lands.

Priority 4: Any tract lying within the boundaries of habitat designated by the U.S. Fish and Wildlife Service as critical to the desert tortoise.

Priority 5: Any tract in the nonwilderness portion of the preserve, for which an incompatible use is proposed and imminent, in the following geographical order:

a. Baker entrance
b. Hole-in-the-Wall
c. Mid Hills
d. Round/Gold Valleys
e. Wild Horse Canyon
f. Cima area

Priority 6: Mining claims, water rights, easements and rights-of-way where proposed use or development would have a significant impact on preserve resources.

Priority 7: All other tracts where there is a willing seller.

In Priority 5, the geographic areas are ranked because of their proximity to areas of high visitor use and potential conflict between users and landowners. In this area development would be most apparent and disturbing to the scenic values.

Upon acquisition of developed lands, the National Park Service might remove existing structures to restore the natural appearance and scene. Existing structures would be evaluated for their cultural resource value before any action is taken. Exceptions to this may be situations where the National Park Service acquires a property with a house that may be suitable for employee housing or other use, and is not in wilderness.

VI. APPENDIXES

C-1: Legal description for preserve boundary
C-2: Unpatented Mining Claim Groups
C-3: Patented Mining Claim Groups
C-4: Appropriated Water Rights

C-1: LEGAL DESCRIPTION FOR PRESERVE BOUNDARY

FINAL **MOJAVE NATIONAL PRESERVE** JUNE 24, 1996

UNIT 1

Beginning at the closing corner of sections 13 and 24, on the state boundary between California and Nevada, in T. 15N., R. 17E-, SBM this point being the point of beginning;

thence northwesterly along the state line between California and Nevada to the intersection with a point 100 feet southerly of Hwy. 164, aka. Nipton Rd.;

thence westerly parallel with and 100 feet southerly of Hwy. 164 to the intersection with the N-S centerline of section 33, T.16N., R- 16E.;

thence southerly on the N-S centerline of the W ½ of section 33 to the Southwest 1/16 corner of section 33;

thence westerly on the E-W centerline of the SW ¼ of section 33 and the E-W centerline of the SE ¼ of section 32 to the intersection with a point 100 feet southerly of Hwy. 164;

thence westerly parallel with and 100 feet southerly of Hwy 164 to the intersection with the N-S centerline of the West ½ of section 21, T.15 ½ N., R.15E.;

thence southerly on the N-S centerline of the West 1/2 of section 21 to the west 1/16 corner between sections 21 and 28;

thence westerly between sections 21 and 28, 20 and 29 to the corner of sections 19, 20, 29, and 30;

thence northerly between sections 19 and 20 to the intersection with a point 100 feet southerly of Hwy. 164;

thence westerly parallel with and 100 feet southerly of Hwy 164 to the intersection with the Interstate 15 southerly right-of-way;

thence southwesterly along the southerly right-of-way of Interstate I-15 to the intersection with the section line between sections 21 and 22, T.15 ½ N., R.14E.;

thence southerly between sections 21 and 22 to the corner of sections 21, 22, 27 and 28;

thence easterly between sections 22 and 27 to the corner of sections 22, 23, 26,, and 27;

thence southerly between sections 26 and 27, 34 and 35 to the corner of sections for 3 4 and 35 only;

thence easterly on the township line between T.15 and 15 ½ N. to the corner of sections 1 and 2 only, T.15N., R.14E.;

thence southerly between sections 1 and 2 to the corner of sections 1, 2, 11, and 12;

thence westerly between sections 2 and 11, 3 and 10, 4 and 9, 4 and 8 to the corner of sections 4, 5 and 8;

thence northerly between sections 4 and 5 to the corner of sections 4 and 5 only,

thence westerly between T.15 and 15 ½ N. to the top corner of sections 31 and 36 only, T.15½ and 16N., R.13 and 14E.;

thence continuing westerly on the township line between T.15 and 16N. to the corner of sections 34 and 35, T.16N., R.13E.;

thence northerly between sections 34 and 35, 26 and 27, 22 and 23 to the corner of sections 14, 15, 22, and 23;

thence westerly between sections 15 and 22, 16 and 21 to the corner of sections 16, 17, 20, and 21;

thence northerly between sections 16 and 17 to the intersection with the southerly right-of-way of Interstate 15;

thence southwesterly along the southerly right-of-way of Interstate 15 for approximately 27 miles to the intersection with a line projecting due north from an unnamed peak in section 29 with the I-15 ROW, T.13N. R.8E., SBM;

thence southerly along the aforesaid projected line to said peak;

thence southwesterly parallel to and 50 feet easterly of said railroad grade to the northerly right-of-way of the Union Pacific Railroad;

thence easterly, changing to southeasterly along the northerly right-of-way of said railroad to the intersection with the N-S centerline of section 8, T. 10N., R.11E.;

thence southerly on the N-S centerline of section 8 to the 1/4 corner between 8 and 17;

thence southwesterly to the corner of sections 19, 20, 29, and 30;

thence southwesterly to the north 1/16 corner between sections 31 and 36 on the range line between R.10 and 11E.;

thence southerly on said range line between sections 31 and 36 and sections 1 and 6 to the south 1/16 corner between sections, 1 and 6, T.9N., R.10 and 11E.;

thence southerly to the center ¼ corner of section 7, T. 9N., R.11E.;

thence southeasterly to the South 1/16 corner between sections 31 and 32;

thence southeasterly to an unnamed knob with elevation 1074, as depicted on the Budwieser Wash Quadrangle map, 1984, in section 13, T.8N., R.11E.;

thence southerly to an unnamed knob with elevation 1032, as depicted on the Budwieser Wash Quadrangle map, 1984, in section 19, T. 8N., R.12E.;

thence southeasterly to the ¼ section corner between sections 29 and 30;

thence southerly between sections 29 and 30 to a point 30 feet southerly of an unnamed route centerline;

thence southeasterly parallel with and 30 feet south and west of the centerline of said route to the northerly ROW of Interstate 40, in the NE¼ of the NE¼ of section 8, T.7N., R.12E.;

thence easterly approximately 33 miles along the northerly right-of-way of Interstate 40 to a point 100 feet northwesterly of the centerline of a paved road known as Goffs Road;

thence northeasterly parallel with and 100 feet northwesterly of the centerline of Goffs Road to the intersection with the N-S centerline of the NW¼ of section 35, T.10N., R.18E.;

thence northerly on the N-S centerline of the N-W¼ of section 35 and N-S centerline of the SW¼ of section 26 to the center west 1/16 corner of section 26;

thence easterly on the E-W centerline of section 26 to the center ¼ of section 26;

thence northerly on the N-S centerline of section 26 to the center north 1/16 corner of section 26;

thence easterly an the E-W centerline of the NE¼ of section 26 to the north 1/16 corner between sections 25 and 26;

thence southerly between sections 25 and 26 to the 1/4 corner between sections 25 and 26;

thence easterly on the E-W centerline of section 25 to the intersection with line 2-3 of Tract 39;

thence southerly on line 2-3 of Tract 39 to the northerly right-of-way of Southern Pacific Railroad;

thence easterly along the nearly right-of-way of Southern Pacific Railroad to a point 100 feet westerly of the centerline of the MWD telephone line or access road, whichever is farther west;

thence northerly, changing to northwesterly, to the westerly ROW of a MWD power transmission line or access road, whichever is farther west;

thence northerly along the westerly ROW of the power transmission line to the intersection with the Nevada-California state line;

thence northwesterly along the Nevada-California state line to the intersection with the closing E-W centerline in section 10, T.14N., R.18E.;

thence, westerly on the E-W centerline of section 10 and 9 to the center west west 1/64 corner of section 9;

thence southerly on the N-S west west 1/64 line, through all controlling corners in sections 9, 16, 21, and 28 to the west-west 1/64 corner between sections 28 and 33;

thence westerly between sections 28 and 33 to the corner of sections 28, 29, 32, and 33;

thence southerly between sections 32 and 33 to the ¼ corner between sections 32 and 33;

thence westerly on the E-W centerline of section 32 to the ¼ corner between sections 31 and 32;

thence southerly between sections 31 and 32 to the section corner of sections 31, 32, 5, and 6, T.13 and 14N., R.18E.;

thence westerly between sections 6 and 31, on the township line, to the township corner common to sections 1, 6, 31, and 36, T.13 and 14N., R.17 and 18E.;

thence southerly between sections 1 and 6 to the corner of sections 1, 6, 7, and 12, on the range line;

thence westerly between sections 1 and 12 to the corner of sections 1, 2, 11, and 12, T.13N., R.17E.;

thence southerly between sections 11 and 12 to the corner of sections 11, 12, 13, and 14;

thence westerly between sections 11 and 14, 10 and 15, 9 and 16 to the corner of sections 8, 9, 16, and 17;

thence northerly between sections 8 and 9, 4 and 5, and in T.14N., R17E. sections 32 and 33 to the corner of sections 28, 29, 32, and 33;

thence easterly between sections 28 and 33 to the corner of sections 27, 29, 33, and 34;

thence northerly between sections 27 and 28, 21 and 22, 15 and 16 to the corner of sections 9, 10, 15 and 16;

thence westerly between sections 9 and 16 to the corner of sections 8, 9, 16, and 17;

thence northeasterly to the north 1/16 corner between sections 9 and 10;

thence southerly between sections 9 and 10 to the south-south 1/64 corner between sections 9 and 10;

thence easterly on the E-W south-south 1/64 line to the southeast-southeast 1/64 corner of section 10;

thence northerly on the N-S centerline of the NE¼ of the SE¼ of section 10 to the centereast-southeast 1/64 corner of section 10;

thence easterly on the E-W centerline of the SE¼ of section 10 and the E-W centerline of the SW¼ of section 11 to the centersouth 1/16 corner of section 11;

thence northerly an the N-S centerline of section 11 to the ¼ corner between sections 2 and 11;

thence easterly between sections 2 and 11 to the east 1/16 corner between sections 2 and 11;

thence northerly an the N-S centerline of the SE 1/4 of section 2 to the centereast 1/16 corner of section 2;

thence easterly on the E-W centerline of section 2 to the center east-east 1/64 corner of section 2;

thence northerly on the N-S east-east 1/64 line, through all controlling corners, in sections 2, sections 35, 26, and 23 in T.15N., R.17E. to the east-east 1/64 between sections 14 and 23;

thence easterly between sections 14 and 23, 13 and 24 to the closing corner between sections 13 and 24, an the Nevada-California state line, this point being the point of beginning.

PARCEL NO. 2 CLARK MTN.

From the corner of sections 25 and 36, on the range line, T.17N, R.13 and 14E., this point being the point of beginning;

thence northerly on the range line between R.13 and 14E. to a point 1320 feet southerly of the southernmost existing electrical power transmission line;

thence westerly, changing to southwesterly, parallel with and 1320 feet southerly of said power transmission line to a point 100 feet easterly of the centerline of Kingston Road/Excelsior Mine Rd.;

thence southerly, changing to southeasterly in section 16, T.16N., R.12E., parallel with and 100 feet easterly of the centerline of said road to the intersection with the section line between sections 15 and 16, T.16N., R.12E;

thence northeasterly to the corner of sections 1, 6, 7, and 12, T.16N., R.12 ½ and 13E.;

thence southerly between sections 7 and 12 to the north 1/16 corner between sections 7 and 12 on the range line;

thence easterly an the E-W centerline of the NW ¼ and the NE ¼ of section 7 to the north 1/16 corner between sections 7 and 8, T.16N., R.13E.;

thence northerly between sections 7 and 8, 5 and 6 to the south 1/1 6 corner between sections 5 and 6;

thence easterly on the E-W centerline of the SW ¼ and SE ¼ of section 5 and the E-W centerline of the SW ¼ of section 4 to a point 2640 feet northwesterly of the centerline of the existing power transmission line;

thence northeasterly parallel to and 2640 feet northwesterly of said transmission line to the

intersection with the section line between sections 3 and 4;

thence northerly between sections 3 and 4 to the ¼ corner between sections 3 and 4;

thence northwesterly to the center east 1/16 corner of section 33, T.17N., R.13E.;

thence easterly on the E-W centerline of section 33 to the ¼ corner between sections 33 and 34;

thence northwesterly to the northeast 1/16 corner of section 33;

thence northeasterly to the southwest 1/16 corner of section 27;

thence southeasterly to the ¼ corner between sections 27 and 34;

thence easterly between sections 27 and 34, 26 and 35, 25 and 36 to the point of beginning.

EXCEPTIONS

Excepting therefrom Unit 1, Mojave N.P. the following land in the Lanfair Valley area. Any Federal, State or Catellus land interest in the following townships are within the boundary of the Mojave National Preserve.

T.11N. R.15E., SBM

Tract 39,
S½ NW¼, S½ SW¼,, Lots 2 and 3 in Section 17,
SE¼ NE¼, NE¼ SE¼ of Section 18,
Tract 42,

T.12N., R.15E., SBM

Tract 3 8,
All of Section 4,
All of Section 5,
NE¼ NE¼ of Section 7,
All of Section 8 except the N½ NE¼ NW¼and NE¼ NWI/4 NW¼ of Section 8,
All of Section 9,
All of Section 16,
N½ of Section 17,
E½ SW¼ of Section 20,
All of Section 29,
All of Section 36,

T. 13N., IL 15E., SBM

All of Section 2 except lots 1, 2, 3, and 4,
NE¼ SW¼ and S½ SW¼ of Section 3,
Mineral Survey 3920,
SE¼ NE¼ and NE¼ SE¼ of Section 9,
All of Section 10 except N½ NE¼,
All of Section 11 except E½ NE¼ and E½ SW¼,
S½, SW¼ of Section 12,
SE¼, SW¼, NW¼ and SE¼ NE¼ of Section 13,
All of Section 14,
All of Section 15,
NW¼ NE¼ and lot 10 of Section 15,
Lot 4 of Section 19,
NE¼ and N½ SE¼ of Section 21,
All of Section 22 except S½ SE¼ and S½ SW¼,
All of Section 23 except S½ SW¼,

All of Section 24 except N½ NE¼,
N½ NE¼ and NW¼ of Section 25,
E½ of Section 26,
S½ of Section 34,
S½ and the N½ NE¼ of Section 35,
All of Section 36.

T.11N., R.16E., SBM

Tract 37,
NE¼ and E½ NW¼ of Section 4,
Tract 40,
Tract 41,

T.12N., R.16E., SBM

Tract 39,
Tract 41,
Tract 42,
All of the S½ of Section 5 except the W½ SE¼ SW¼,
Tract 37,
Tract 38,
SE¼ of Section 7,
All of Section 8 except the NE¼,
All of Section 9,
All of Section 10 except the SW¼,
All of Section 11 except the NW¼,
NE¼ of Section 12,
Tract 61,
Tract 43,
All of Section 14,
All of Section 15,
All of Section 16,
All of Section 17,
NE¼, SE¼, E½ SW¼, and lots 7 and 10 of Section 18,

T.12N., R.16E., SBM

E½ of Section 20,
NE¼ and SW¼ of Section 22,
NE¼, SE¼, and NW¼ of Section 23,
Tract 44,
Tract 100,
E½ of Section 26,
W½ of Section 27,
N½ of Section 28,

T.13N., R.16E., SBM

Tract 37,

All of Section 12 except the NE¼,
All of Section 13,
E½ of Section 14,
W½ of Section 15,
W½ of Section 20,

T.13N., R.16E.,

E½ of Section 21,
All of Section 22,
All of Section 23,
SW¼ of Section 24,
All of Section 26,
All of Section 27 except the SW¼,
NE¼of Section 28,
E½ of Section 29,
NW¼ SE¼ of Section 31,
All of Section 34,
NE¼ of Section 35,

T.11N., R.17E., SBM

Tract 38,
Mineral Survey 4876,
SE¼ SE¼ of Section 4,
Mineral Survey 4525 B,
Mineral Survey 4525 A,
Tract 45,
Tract 51.

T.12N., R.17E., SBM

Tract 63,
Tract 64,
Tract 65,
Tract 37,
Tract 38,
Tract 39,
Tract 40,
Tract 41,
Tract 45,
Tract 46,
Tract 47,
That portion of Tract 48 not conveyed to the United States by Deed #814, Book 9345, File #1289, in the records of San Bernardino County, State of California,
Tract 44,
Tract 70,
Tract 71,
Tract 95,
Tract 72,

Tract 73,
Tract 74,
Tract 78,
Lots 20 and 21 in Section 11,
All of Section 14 except Tract 81, and any portion of Tracts 75 and 79
Tract 80,
Tract 85,
Tract 84,
Tract 83,
Tract 49,
Tract 50,
Tract 87,
Tract 59,
Tract 58,
Tract 54,
Tract 55
Tract 56
Tract 57,
Tract 91,
Tract 92,
S½ NE¼ and lots 2, 3, and 6 of Section 23,
Tract 60,

T.13N., R.17E., SBM

Tract 37,
Tract 38,
Tract 39,
Tract 40,
Tract 41,
Tract 42,
Tract 43,
Tract 44,
Tract 45,
Tract 47,
Tract 48,
Tract 49,
Tract 50,
Tract 51,
Tract 52,
Tract 55,
Tract 58,
Tract 60,
Tract 62,
Tract 64,
Tract 65,
Tract 66,
Tract 67,
Tract 68,
Tract 69,

Tract 70,
Tract 71,
Tract 72,
Tract 73,
Tract 74,
Tract 75,
Tract 77,
All of Section 36.

T.11N., R.18E., SBM

The SE¼ of Tract 41,

T.12N., R.18E., SBM

Lots 5, 6, 11, 12, 17, E½ SW¼ and SE¼ NW¼ of Section 6,
Lots 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, E½ NW¼ and E½ SW¼ of Section 7,
Lots 3, 5, 7, 9 of Section 18,
Tract 42,
Tract 43,
Tract 44,
SE¼ SE¼ of Section 13,

T.13N., R.18E., SBM

Tract 39,
All of Section 16,
All of Section 36.
END OF DESCRIPTION

C-2: UNPATENTED MINING CLAIM GROUPS

Claimant	Claim Group	# of Claims	Lead Serial Number	Location (MD & SB B&M)			Acres (approx.)	Comments
				T	R	Sec.		
Golden Chief	CB	25	253549	12N	15E	1, 12	517	Lodes
Golden Chief	JAL	63	253982	11N	14E	4, 5, 6	1300	Lodes
J. Rowsell	Rowsell	4	27111	15N	14E	20	82	Bessie, Elva, B Vista
D. Rowsell	Ross	1	42504	15N	13E	25	20	
Cole	Big Horn	3	241224	9N	14E	21	60	
Quinnett	Phoenix	9	243742	9N	14E	29	186	
GA. Marble	Striped Mountain	36	130193 64368	15N	14E	7, 18	744	2 groups of ls. Placers
Maxfield	Ryder Marble	19	151928	12N	9E	13, 18	393	Lodes and placers
Vanderbilt Gold	Star	39	254834	15N	14E	21, 27	806	Morning Star (lodes)
Vanderbilt Gold	MS	31	264891	15N	14E	28, 33	155	Mill sites
Wheeling	Colosseum Bond	1	258751	13N	11E	1	160	Association placer
Wheeling	Globe Canyon	1	258752	11N	14E	8	160	Association placer
Wheeling	Hilltop	1	258753	15N	17E	28	160	Association placer
Wheeling	Kramer Beaver	1	258755	9N	11E	30	160	Budweiser Wash Out?
Pluess-Staufer	Key	36	124759	13N 14N	16E	5,7 29,32,33	744	Ls. placers
Pluess-Staufer	Key BE	10	129632	13N	16E	8	207	Ls. placers
Pluess-Staufer	Key DW	24	129642	13N	16E	8	496	Ls. placers
Charity Minerals	Charity	22	201797	11N	10E	5-9,17,18	455	
Sterner	Belltrix	2	202023	13N	12E	13	41	Lodes
Molycorp	Syenite	9	233774	15N	14E	19,29	186	Mountain Pass
Stovall	MSCO #1	1	237597	15N	14E	10	41	Placer (assoc.?)
Simon	Box Canyon	1	219807	15N	14E	31	5	Mill
Bond Gold Colosseum	CAL Colosseum	15	205466	17N	13E	15	310	Clark Mts. Lodes
Viceroy Gold	PS 2	1	243182	12N	18E	23	5	Mill
Alcantara	Gold Hammer No.3	1	243480	8N	15E	12	20	Lode
Idora Silver Mines	FE Group	9	250924	12N	10E	11,13	186	
Johnson	Johnson 1 & 2	2	253435	15N	14E	21	41	Lodes
Ceramite	Ceramite Grp.	14	260178	15N	14E	21.22	289	Culprite, Oxide...
Leja	Lucky Day	2	260613	13N	16E	6	41	N.Y Mts. - lodes
Sharp	IVP Group	12	263021	17N	13E	9	248	Clark Mts. - Lodes
Viceroy	FT Mill sites	3	263637	14N	17E	9,17,32	15	Waterhole W&PA; FT 329A, 324A
Draco/Cal Gold	CAL-Draco	59	28632	17N	13E	10,11,1522, 23	1219	Clark Mts. – Lodes
Smith	Mojave Tungsten	1	36497	17N	13E	15	5	Mill site

Claimant	Claim Group	# of Claims	Lead Serial Number	Location (MD & SB B&M)			Acres (approx.)	Comments
				T	R	Sec.		
Blair Bros.	Blair Grp.	4	38276	11N	14E	32-34	83	Hendrickson,Oscar,Half way/Silver Star
Avery, et al.	Crucero	4	40370	9N	13E	21,22,28	83	Kelso Dune placers
American Gold Mining	New Era No.3	1	121	15N	14E	20,29	20	
Parker, et. al.	Hope Grp.	5	124203	9N	12E	7,8,9	800	160-ac assoc. pl.?
Gossum & Hill	Gyron	1	127299	13N	10E	22	20	Lode
Oriskovich, et al	Moon Star	7	131182	12N	15E	13,14,23	145	Placers & lodes
Cascade Energy & Metal	Telegraph No. 80	1	135231	15N	11E	20	20	
Specialty Minerals	Meevint Grp.	5	15228	14N	16E	8,9	103	Placers
BFM Assoc.	Sial/Rose Grp.	7	16142	14N	16E	21,29	98	4 lodes; 3 mill sites
Stroud/Unicorp	Stroud	4	163011	13N	11E	28	83	Placers
Branch Const.	Barnett Grp.	8	193523	12N	15E	11	165	4 lodes; 4 placers
Bates, et. al.	Oro Fina	12	91929	14N	12E	17-20,30	248	Cinder Cone Placers
Viceroy	FT	76	240455	14N	17E	9,19	483	Mill Sites; out?
Viceroy	Waterhole W7P	1	214072	14N	17E	9	5	Mill Site NE¼&NW¼
Dawson; Morris	Cal-Nev-Ari	2	238277	13N	19E	20, 32	41	Placers
Unicorp Financial Corp.	Volco	6	259627	13N	11E	28, 33	145	Lode claims topfiled over Black Claims
Avery, et al	Jernberg	29	41032	9N	12E	4 – 9	640	Placers
Ray, Hutchison	Cinder #4&5	2	44021	14N	12E	32	20	Placer – Cima
Benson/Burrier	Dol White #5	1	30768	14N	16E	32	20	Placer – ls.
Viceroy Gold	Roy Grp.	5	173852	14N	17E	11	103	Part in/out
Viceroy Gold	Fitz Grp.	88	187766	14N	18E	17, 20…	1,839	Lodes – maybe out
Benson Minerals, Inc.	Golden Quail Group	29	203865	13N	16E	6,7,8,12,13, 17-20	2955	Lodes
Avery, et al	Royal Falcon	16	40899	9N	11E	2, 11	331	Placers
Viceroy Gold	Southern Belle	2	171539	14N	17E	19	40	Lodes (Nos.14 & 68)
Clark/Orr, et al	Soda Lake	4	68490	13N	8E	24, 25	640	160-ac assoc. placer
Caffee/Ray	Cinder M	39	246752	14N	12E	19,20 29,30	195	Mill sites: 2M 1-32; 3M 1-7; pat. appl.
Black Claims, Inc.	Volco	10	105446	13N	11E	28	420	9 lodes; 1 – 140-ac assoc. placer
Caffee	Iwo Jima M	8	246795	14N	12E	17	40	Millsites; patent appl.
Browning	Desert M.H.B.G. #5	1	73537	13N	11E	8	20	Lode
	TOTALS	**836**					**19,262**	

C-3: PATENTED MINING CLAIMS

Parcel Number	Claimant	Claim Group	Serial Num	Town ship	Range	Section	Acres	Comments
0558-091-01	Overstrom, Conrad G Etal	Iron Victory and Iron Victory No 1	6553	08N	12E	2	31.32	pat no 1156864
0563-071-10	Kirnig, Barbara H Etal	Cornfield Springs Con		10N	13E	11	20.66	min sur no 4692, pat no 310549, Lode
0563-071-09	Kirnig, Barbara H Etal	East Iron Extension mine		10N	13E	11	19.41	min sur no 4692, pat no 310549,
0563-071-11	Kirnig, Barbara H Etal	Pamona Quartz mine		10N	13E	11	20.66	min sur no 4692, pat no 310549,
0563-221-28	Hayden Resources Ltd	Bonanza King		10N,11N	14E	3, 32	16.20	min sur no 2130, , north in Trojan Mining District Providence Range
0563-261-03	Kirnig, Barbara H Etal	Black Jack		11N	13E	36	20.60	min sur no 4693, pat no 310550, Lode
0563-221-25	Gomez, Alejandro Etal	Rattler		11N	14E	32	16.30	min sur no 2132, , north in Trojan Mining District Providence Range
0563-211-17	Van Gessel, Douglas S R TR	Bonanza King First Extension		11N	14E	32	17.70	min sur no 2131, north in Trojan Mining District Providence Range
0563-211-24	Van Gessel, William A G	Bonanza King First Extension		11N	14E	32	17.70	min sur no 2131, north in Trojan Mining District Providence Range
0657-201-12	Sacaroni, Paul Etal TRS	Contention Copper Mine		11N	17E	10	20.63	min sur no 4525, A & B patented;
0657-201-09	Sacaroni, Paul Etal TRS	Gray Copper Mine		11N	17E	10	20.66	min sur no 4525, A & B patented
0657-201-05	Sacaroni, Paul Etal TRS	Great Eastern Copper Mine		11N	17E	10	20.66	min sur no 4525, A & B patented
0657-201-11	Sacaroni, Paul Etal TRS	Mayflower Copper Mine		11N	17E	10	20.66	min sur no 4525, A & B patented
0657-201-13	Sacaroni, Paul Etal TRS	Mocking Bird Copper Mine		11N	17E	10	20.66	min sur no 4525, A & B patented
0657-201-14	Sacaroni, Paul Etal TRS	Mounaineer Mill Site Mine		11N	17E	10	3.51	min sur no 4525, A & B patented
0657-201-10	Sacaroni, Paul Etal TRS	Mountaineer Copper Mine		11N	17E	10	20.66	min sur no 4525, A & B patented;
0657-201-06	Sacaroni, Paul Etal TRS	Red Jacket Copper Mine		11N	17E	10	20.61	min sur no 4525, A & B patented;
0657-201-08	Sacaroni, Paul Etal TRS	Run Over Mine		11N	17E	10	20.66	min sur no 4525, A & B patented;
0657-201-07	Sacaroni, Paul Etal TRS	Sentinal Copper Mine		11N	17E	10	20.66	min sur no 4525, A & B patented;

Parcel Number	Claimant	Claim Group	Serial Num	Town ship	Range	Section	Acres	Comments
0657-201-03	Goodwin, Guy L Co Etal	American Flag Consolidated Mines		11N	17E	11		min sur no 4876, pat No 319694:; American Flag, Surprise, Cala Vada, Lyda, Donald
0657-191-05	Goodwin, Guy L Co Etal	American Flag Consolidated Mines		11N	17E	2		min sur no 4876,pat No 319694:; Bessie & This Gold Bell
0563-171-09	McKenzie, Louise TR	Gold Standard		12N	12E	9	20.65	min sur no 5624, Lode
0567-091-08	Overson, Gary L	Cotton Woods Quartz		13N	15E	8	20.00	Map shows 15.97 AC; Claim Min Sur No 3920
0567-271-01	*Cole, J W Etal	Golden Quail, Golden Quail Ext.#1-11, Plaris#1-10		13N	16E	18		poss int described as: min claims in S7-18 T13N, R16E and S13 T13N, R15E
0567-281-10	*Pluess-Staufer, Inc	NYMS #1 thru #20, DOL		13N	16E	4		poss int sec 107 millsite claims
0567-281-09	*Pluess-Staufer, Inc	DOL White #5		13N	16E	5		poss int sec 107 Placer claim
0567-281-01	*Leja, George A Etal	Lucky Day #1 and 2		13N	16E	6		poss int lode claims in sec 6
0567-281-12	*Pluess-Staufer, Inc	Key		13N	16E	8		poss int sec 107 Placer and lode claims in secs 4, 5, 6, 7, 8, 9
0543-281-03	Hardaker, Charles A Etal	Bonehead, Key, Marblehead No 1		13N	9E	5, 4	320.00	No 1 secs 5, 4 and sec 5
0569-261-10	*Pluess-Staufer, Inc			13N,14N	16E	3, 4, 7, 32, 33, 34		also par no 0056-046-90, poss int, Placer and lode claims (owned by government 615.58 acres)
0569-271-02	*Pluess-Staufer, Inc	Key		13N,14N	16E	4, 5, 29, 32, 33		also par no 0056-046-92, poss int, lode and Placer claims (owned by government)
0569-031-02	O Meara, Berta J Etal	Garvanza extension		14N	15E	23	20.60	mines min sur no 4617 quartz claim pat sec 23
0569-031-03	O Meara, Berta J Etal	Garvanza		14N	15E	23	16.21	mines min sur no 4617 mine
0569-011-02	Brooke, Francis M Etal	Big Hunch and Big Hunch NO 1 Beta and Omega		14N	15E	34, 35	82.80	min sur no 5520 lodes in New York Mining District
0569-021-21	Baynham, Wilhelmina Etal	Tungsten No 1, 2, 3, 4		14N	15E	36	80.00	
0569-221-01	Reeder, Leland P	Queen of the Night		14N	16E	2, 3	20.33	min sur no 4788 pat
0569-221-02	Reeder, Leland P	Webster		14N	16E	2, 3	20.33	min sur no 4788

Parcel Number	Claimant	Claim Group	Serial Num	Town ship	Range	Section	Acres	Comments
		Consolidated						lode claim
0569-221-04	Reeder, Leland P	Clay, Boomerang, Iron, Oversight, Rose, and Surprise		14N	16E	2, 3, 4	94.08	min sur no 3927 patented mining claims in Vanderbilt mining distance consisting of lodes
0569-251-02	De Lellis, Peter J	Copper Bullion Dot Nuggett Scorpion Side Issue Sophie Metcalf and William C		14N	16E	22		min sur no 4696 pat
0569-271-02	*BFM Associates, Inc	Sial, Sial #2, Rose #1, Rose #2, lode claims and Sial #2 and #3		14N	16E	29		also par no 0056-271-02, poss int, millsite (owned by government)
0569-231-02	Reeder, Leland P	Stanley and Millsite		14N	16E	3, 4	31.55	min sur no 3927 patented mining claims in Vanderbilt mining distance consisting of lodes
0569-211-03	Reeder, Leland P	Gold Bar		14N	16E	3, 4	18.25	min sur no 3929 Gold Bar cons group consisting of
0569-201-03	Reeder, Leland P	Gold Bar		14N	16E	3, 4	17.69	min sur no 3929, first west extension of
0569-201-02	Reeder, Leland P			14N	16E	3, 4	20.66	min sur no 3929, side location
0569-201-04	Reeder, Leland P	Eleanor and Allen, Brick, Tutchumb		14N	16E	3, 4	92.15	Vanderbilt mining distance consisting of lodes in min sur no 4253 and lode and Brick lode no 2 and in min sur 3927
0569-201-06	Goldome (Nevada) Inc			14N	16E	4	34.40	min sur no 6785 being a ptn fractl sec 4
0569-201-06	*Goldome Capital Corporation	Vanderbilt		14N	16E	4		Mill (same parcel as Goldome Inc)
0569-241-04	Overson, Gary L	Waterloo		14N	16E	5	20.00	min sur no 3928
0569-241-03	*Specialty Minerals Inc	Meevint #1 thru 5		14N	16E	5, 8, 9		also parcel no 0056-774-53, poss int described as Placer claims (owned by government)
0569-301-14	*Viceroy Gold Corporation	FT #69A,320A,324A ,328A,329A		14N	17E	13, 15, 17, 25, 32		possessory interest described as millsite claims

Parcel Number	Claimant	Claim Group	Serial Num	Town ship	Range	Section	Acres	Comments
								(owned by government)
0569-301-10	*Viceroy Gold Corporation	FT 225 thru 319		14N	17E	9		possessory interest described as millsite claims (owned by government)
0569-301-10	*Viceroy Gold Corporation	JCMV #1 thru 31		14N	17E	9		possessory interest described as millsite claims (owned by government)
0569-211-01	Desert Mines, Inc	Crystal		14N,15N	16E	3, 4, 35	20.00	min sur no 5083 lode
0570-061-27	Cascade Energy and Metals Corp	South Telegraph		15N	11E	17		min sur no 6792 Lode mining claim
0570-061-29	Cascade Energy and Metals Corp	Telegraph Extension		15N	11E	17		min sur no 6792 Lode mining claim
0570-061-28	Cascade Energy and Metals Corp	Telegraph		15N	11E	17		min sur no 6792 Lode mining claim
0570-061-30	*Weston, Paige S	Telegraph No 1 thru 3 and 14 thru 16		15N	11E	17		poss int, lode claims
0570-061-30	*Weston, Ty	Telegraph No 29, 30, 72 thru 79		15N	11E	17, 18, 19, 20		poss int, lode claims
0570-061-30	*Cascade Energy and Metals Corp	Telegraph #4-8, 19, 20, 32-35, 80, Agua Dulce #1-3, Agua Dulce Lomex No 1, Telegraph No 1-4		15N	11E	17, 18, 19, 20, 21		poss int, lode claims and millsite claims
0570-061-30	*Weston, Vicki S	Telegraph No 31, 37 thru 45		15N	11E	17, 19, 20		poss int, lode claims
0570-061-30	*Weston, Wade	Telegraph No 10, 11, 26, 27, 28, 48 thru 51 and 71		15N	11E	17, 19, 20		poss int, lode claims
0572-101-02	*Molycorp, Inc	Bailey #1 thru 48,50 thru 59, 62 thru 69, 72 thru 75		16N,17N	13E	2, 3, 11, 12, 26, 27, 34, 35		poss int described as lode claims (owned by government)
0572-141-14	*Colosseum Inc	Mojave Tungsten Well, Tortise #1 and 2		17N	13E	10, 11, 14, 15, 22, 23		poss int described as Cal #1-54, 57-62, 64-66, 68, 71, 73, 75-77, 79, 81, 83, 122, 172 lode claims millsites (owned by government)
0572-151-03	Jacobs, Lester H Etal	Monitor		17N	13E	24	5.00	millsite lot no 37, min sur no 1019

Parcel Number	Claimant	Claim Group	Serial Num	Town ship	Range	Section	Acres	Comments
0572-161-08	Melville, Marvin A TR	Lizzie Bullock, Lizzie Bullock No 2		17N	13E	9	22.50	Original Lode lot 41 min sur no 1671 and lode lot 40 min sur no 1178
0558-291-05	*Somogyi, Susan G Etal	Phoenix #1 thru 9		9N	14E	29		poss int, lode claims
TOTAL							**1,350**	

C-4: APPROPRIATED WATER RIGHTS

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/ D U	STO AMT	USE
S013296	8	N	12	3	SW	NE	SHEEPHORN SPRING	BULL CANYON	OVERSON, CLAY	375.00	G	0.00	S
S013297	8	N	12	10	NE	NE	BULL CANYON SPRING	DEVILS PLAYGROUND WASH	OVERSON, SANDRA	525.00	G	0.00	S
S013298	8	N	12	12	NE	NW	COTTONWOOD SPRING	COTTONWOOD WASH	OVERSON, CLAY	750.00	G	0.00	S
S009124	8	N	12	15	SW	NE	SIDEDRAW SPRING	WILLOW SPRING WASH	U.S. BUREAU OF LAND MGMT	360.00	G	0.00	W
S013299	8	N	12	20	NW	NE	BUDWEISER SPRING	BUDWEISER WASH	OVERSON, CLAY	1500.00	G	0.00	S
F007888S	8	N	12	22	NE	NE	BASALT SPRING	UNST	U.S. BUREAU OF LAND MGMT	200.00	G	0.00	W
F009123S	8	N	12	23	NW	NE	UPPER DAD SPRING	WILLOW SPRING WASH	U.S. BUREAU OF LAND MGMT	200.00	G	0.00	W
S013300	8	N	12	23	NW	SE	WILLOW SPRING	COLOSSEUM GORGE	OVERSON, CLAY	1500.00	G	0.00	S
S013301	8	N	13	5	NE	SE	LOWER SNAKE SPRING	COTTONWOOD WASH	OVERSON, CLAY	300.00	G	0.00	S
S013302	8	N	13	5	SE	SE	UPPER SNAKE SPRING	COTTONWOOD WASH	OVERSON, SANDRA	300.00	G	0.00	S
F011201S	8	N	13	7	NW	NW	COTTONWOOD SPRING	COTTONWOOD WASH	U.S. BUREAU OF LAND MGMT	1800.00	G	0.00	S, R, W
S013303	8	N	13	7	NW	NW	COTTONWOOD SPRING 2	COTTONWOOD WASH	OVERSON, CLAY	300.00	G	0.00	S
S013304	8	N	13	9	NE	NE	UNSP	VAN WINKLE WASH	OVERSON, CLAY	75.00	G	0.00	S
F007889S	8	N	13	23	NW	NW	VAN WINKLE SPRING	UNST	U.S. BUREAU OF LAND MGMT	3600.00	G	0.00	S, W
S013305	8	N	13	23	NW	SW	VAN WINKLE SPRING	VAN WINKLE WASH	OVERSON, CLAY	150.00	G	0.00	S
G362429	8	N	17	4	SE	NW			STATE OF CALIFORNIA CALTRANS				
S013306	9	N	12	24	SE	SW	COYOTE SPRING	COTTONWOOD WASH	OVERSON, CLAY	750.00	G	0.00	S
S007948	9	N	12	35	SE	SW	UNSP	BIGHORN BASIN	U.S. BUREAU OF LAND MGMT	100.00	G	0.00	W
S007949	9	N	12	35	NE	NW	UNSP	LOWER BIGHORN BASIN	U.S. BUREAU OF LAND MGMT	100.00	G	0.00	S

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/D U	STO AMT	USE
S013307	9	N	12	35	NW	SE	BIGHORN SPRING	PLAYGROUND WASH	OVERSON, SANDRA	525.00	G	0.00	S
S007951	9	N	13	14	NW	SE	UNSP	GOLDFISH TANK SPRING	U.S. BUREAU OF LAND MGMT	100.00	G	0.00	W
G363379	9	N	13	19	SE	NE			W.L.S.R. INC				
F007950S	9	N	13	22	SE	SW	ARROWWEED SPRING	UNST	U.S. BUREAU OF LAND MGMT	3600.00	G	4.00	W, S
S013308	9	N	13	22	SW	SE	ARROWWEED SPRING	COTTONWOOD WASH	OVERSON, CLAY	3750.00	G	0.00	S
S013309	9	N	13	25	NW	SE	QUAIL SPRING	QUAIL SPRING WASH	OVERSON, CLAY	150.00	G	0.00	S
S013310	9	N	13	25	NW	NW	UPPER QUAIL SPRING	QUAIL SPRING WASH	OVERSON, SANDRA	150.00	G	0.00	S
S013311	9	N	13	30	SW	SW	TWIN SPRINGS	COTTONWOOD WASH	OVERSON, CLAY	300.00	G	0.00	S
S013312	9	N	13	34	SE	NW	HORSE HILLS SPRING	COTTONWOOD WASH	OVERSON, SANDRA	525.00	G	0.00	S
S013313	9	N	14	6	NE	SW	UNSP	WINSTON WASH	OVERSON, CLAY	375.00	G	0.00	S
G362315	10	N	11	6					UNION PACIFIC RAILROAD COMPANY				
S013314	10	N	13	11	SW	NE	UNSP	WINSTON WASH	OVERSON, CLAY	375.00	G	0.00	S
S007714	10	N	13	12	NW	SW	CORNFIELD SPRINGS		UNION PACIFIC RAILROAD COMPANY				
S013315	10	N	13	12	NW	SW	CORNFIELD SPRING	WINSTON WASH	OVERSON, SANDRA	1500.00	G	0.00	S
F009125S	10	N	13	24	NW	SW	SHEEP SPRING	KELSO WASH	U.S. BUREAU OF LAND MGMT	1800.00	G	0.00	W
F009126S	10	N	13	25	NE	NE	FINGER ROCK SPRING	WINSTON WASH	U.S. BUREAU OF LAND MGMT	3600.00	G	0.00	W
S013316	10	N	13	36	SW	SE	DAM GOOD SPRING	WINSTON WASH	OVERSON, CLAY	75.00	G	0.00	S
S013317	10	N	13	36	SW	SE	PIPE WRENCH SPRING	WINSTON WASH	OVERSON, CLAY	150.00	G	0.00	S
A016214	10	N	14	21	NE	SW	CRYSTAL SPRING	UNST	CALIF DEPT OF PARKS & RECREATION	2640.00	G	0.00	D
A016079	10	N	14	31	SW	SW	GOLDSTONE SPRING	WINSTON WASH	OVERSON, SANDRA	500.00	G	0.00	S
A016126	10	N	14	31	SW	SW	GOLSTONE SPRING	UNST	OVERSON, SANDRA	500.00	G	0.00	S

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/ D U	STO AMT	USE
F011203S	10	N	14	31	SE	SW	GOLDSTONE SPRING	UNST	U.S. BUREAU OF LAND MGMT	1800.00	G	0.00	S, W
A016929	10	N	14	32	NW	NE	FOCHE SPRING	BRISTOL LAKE BASIN	BLAIR, ROB	2000.00	G	0.00	S
A000404	10	N	15	21	SW	SW	COLTON WELL	UNST	BLAIR, HOWARD	3600.00	G	0.00	S
G362708	11	N	12	25					UNION PACIFIC RAILROAD COMPANY				
S013318	11	N	13	13	SW	NE	BOLDER SPRING	CEDAR WASH	OVERSON, CLAY	300.00	G	0.00	S
S012602	11	N	14	2	NW	NE	DEER SPRINGS	BRISTOL LAKE	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	S, W
A015271	11	N	14	5	SE	NE	MACEDONIA SPRING	MACEDONIA CANYON	OVERSON, LINDA	410.00	G	0.00	S
S013319	11	N	14	7	NW	NW	UNSP	SUMMIT WASH	OVERSON, CLAY	450.00	G	0.00	S
A016080	11	N	14	9	SE	NW	GLOBE SPRING	GLOBE CANYON	OVERSON, SANDRA	120.00	G	0.00	S
A016081	11	N	14	16	SW	NW	SUMMIT SPRING	GLOBE CANYON	OVERSON, SANDRA	300.00	G	0.00	S
A023437	11	N	14	16	SE	NW	SUMMIT SPRING	UNST	STATE OF CALIFORNIA	100.00	G	0.00	W
A017914	11	N	14	30	SW	NE	TOUGH NUT SPRING	KELSO WASH	OVERSON, SANDRA	150.00	G	0.00	S
A018666	11	N	14	35	NE	NW	DOMINGO SPRING	BEECHER CANYON	BLAIR, ROB	3000.00	G	0.00	D, S
F007890S	11	N	15	3	NW	SE	WOODS MOUNTAIN SPRING	FENNER VALLEY	U.S. BUREAU OF LAND MGMT	3600.00	G	0.00	W
S012603	11	N	15	31	SW	SW	UNSP	UNST	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	S, W
A000668	11	N	15	32	NE	NW	CAVE SPRINGS	UNST	BLAIR, HOWARD	2880.00	G	0.00	S
S012604	11	N	16	1	SE	SW	HACKBERRY SPRING	FENNER VALLEY	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	W
S013429	11	N	16	1	SE	SW	HACKBERRY SPRING	UNST	OVERSON, GARY	3000.00	G	0.00	S
S007893	11	N	16	2	NE	SE	NEGRO MINE SPRING	FENNER VALLEY	U.S. BUREAU OF LAND MGMT	100.00	G	0.00	W
F007891S	11	N	16	12	NE	NW	SOUTH HACKBERRY SPRING	BRISTOL LAKE	U.S. BUREAU OF LAND MGMT	2700.00	G	0.00	W
S013430	11	N	17	4	SE	SE	VONTRIGGER SPRING	IVANPAH LAKE	OVERSON, GARY	750.00	G	0.00	S
S013431	11	N	17	5	SE	SE	HOGABOOM WELLS	UNST	OVERSON, GARY	15000.00	G	0.00	S

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/DU	STO AMT	USE
S013432	11	N	17	7	SE	SW	UNSP	UNST	OVERSON, GARY	225.00	G	0.00	S
A010888	12	N	8	11	SW	NE	SODA STATION SPRINGS	UNST	CURTIS HOWE SPRINGER FOUNDATION	0.14	C	0.00	D, R
S010062	12	N	14	15	SE	NW	COYOTE SPRING	CEDAR WASH	OVERSON, GARY	0.00		0.00	S
S010063	12	N	14	15	NE	SE	WILDCAT SPRING	CEDAR WASH	OVERSON, GARY	0.00		0.00	S
A017612	12	N	14	22	NE	SE	CHICKEN WATER SPRING	UNST	OVERSON, GARY	400.00	G	0.00	S
S010068	12	N	14	23	NE	SE	SILVER LEAD SPRING	CEDAR WASH	OVERSON, GARY	0.00		0.00	S
S010067	12	N	14	27	NE	SW	MEXICAN WATER SPRING	CEDAR WASH	OVERSON, GARY	0.00		0.00	S
S010066	12	N	14	28	SE	NE	BULLOCK SPRING	CEDAR WASH	OVERSON, LINDA	0.00		0.00	S
S013433	12	N	15	2	SE	NE	ROCK SPRINGS	WATSON WASH	OVERSON, LINDA	750.00	G	0.00	S
S013434	12	N	15	3	NW	SW	GOVERNMENT HOLES WELL	UNST	OVERSON, GARY	3750.00	G	0.00	S
S013435	12	N	15	3	NE	SW	GOVERNMENT HOLES WELL	UNST	OVERSON, GARY	3750.00	G	0.00	S
S013436	12	N	15	22	SW	SE	WOODS CANYON SPRING	WOODS WASH	OVERSON, LINDA	225.00	G	0.00	S
A001929	12	N	16	19			NORTH STAR CLAIM	WATSON WASH	OVERSON, LINDA	5760.00	G	0.00	S
S013437	12	N	16	19	NW	NW	WATSON WELL	UNST	OVERSON, GARY	1500.00	G	0.00	S
S013438	12	N	16	24	SE	SW	BLACK DIAMOND SPRING	UNST	OVERSON, LINDA	300.00	G	0.00	S
S013439	12	N	17	4	NW	NW	EAGLE WELL	UNST	OVERSON, GARY	7500.00	G	0.00	S
S013440	12	N	17	17	NE	SE	LANFAIR WELL	UNST	OVERSON, LINDA	4500.00	G	0.00	S
A006199	12	N	18	13	SE	SE	PIUTE STREAM	PIUTE VALLEY	CALIF DEPT OF FISH & GAME	0.40	C	0.00	D, I
F011205S	12	N	18	24	NW	NW	PIUTE SPRING	UNST	U.S. BUREAU OF LAND MGMT	0.14	C	0.00	S, R, W
A018611	13	N	11	3	SW	SW	INDIAN CREEK	SODA LAKE	BLINCOE FARMS, INC	1500.00	G	0.00	S
A017984	13	N	11	4	NW	SE	CANE SPRINGS	INDIAN CREEK	BLINCOE FARMS, INC	1440.00	G	0.00	S
A018611	13	N	11	9	SW	NW	INDIAN CREEK	SODA LAKE	BLINCOE FARMS, INC	1500.00	G	0.00	S
S012606	13	N	11	9	NW	NE	INDIAN SPRING	SODA LAKE	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	W

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/DU	STO AMT	USE
S010069	13	N	12	36	SW	SE	MARL SPRING	KELSO WASH	OVERSON, LINDA	0.00		0.00	S
S010065	13	N	14	14	SE	SW	BURRO SPRING	KELSO WASH	OVERSON, GARY	0.00		0.00	S
S010060	13	N	14	19	NW	SE	BECK SPRING	KELSO WASH	OVERSON, GARY	0.00		0.00	S
A017272	13	N	14	23	SW	SW	JASPER SPRING	UNST	OVERSON, GARY	300.00	G	0.00	S
S011349	13	N	15	4			BUTCHER KNIFE CANYON	BUTCHER KNIFE CANYON	OVERSON, GARY	1125.00	G	0.00	S
S011348	13	N	15	8	NW	NW	COTTONWOOD SPRING	IVANPAH LAKE	OVERSON, GARY	3000.00	G	0.00	S
S012607	13	N	15	9	SW	SW	BATHTUB SPRING	UNST	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	S
S010061	13	N	15	16	NW	NW	BATHTUB SPRING	WATSON WASH	OVERSON, LINDA	0.00		0.00	S
A000677	13	N	15	17	SW	NW	CABIN SPRING	KELSO WASH	OVERSON, GARY	4320.00	G	0.00	D, S
S011206	13	N	15	19	NW	NW	UNSP	UNST	U.S. BUREAU OF LAND MGMT	1800.00	G	0.00	S, W
S011347	13	N	15	19	SW	NW	LIVE OAK SPRINGS	UNST	OVERSON, GARY	3000.00	G	0.00	S
S013441	13	N	15	36	NE	NE	PAYNE WELLS	WATSON WASH	OVERSON, LINDA	4500.00	G	0.00	S
S012513	13	N	16	7	NE	NE	UNSP	UNST	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	S, W
S013442	13	N	16	7	SW	NW	CARRUTHERS WELL	UNST	OVERSON, GARY	10500.00	G	0.00	S
S013443	13	N	17	18	SW	SW	HEADQUARTERS WELL	UNST	OVERSON, LINDA	7500.00	G	0.00	S
A017988	14	N	11	7	SW	NW	HENRY SPRING	UNST	BLINCOE FARMS, INC	1440.00	G	0.00	S
S012866	14	N	11	7	SW	NW	HENRY SPRING	UNST	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	S, W
A017985	14	N	12	20	SW	NW	BLACK TANK	UNST	BLINCOE FARMS, INC	0.00		2.00	S
A020829	14	N	12	20	SW	NW	BLACK TANK	SODA LAKE	BLINCOE FARMS, INC	0.00		5.70	S
A017987	14	N	13	20	SW	NE	DEER SPRING	UNST	BLINCOE FARMS, INC	2880.00	G	0.00	S
S011345	14	N	13	23	SE	SE	CUT SPRINGS	IVANPAH LAKE	OVERSON, GARY	3000.00	G	0.00	S
S011346	14	N	13	25	NW	SW	WHITE ROCK SPRING	UNST	OVERSON, GARY	9000.00	G	0.00	S
S011343	14	N	14	18	SW	NW	KESSLER SPRING	UNST	OVERSON, GARY	23000.00	G	0.00	S
S011344	14	N	14	18	SW	NW	KESSLER SPRING WELLS	UNST	OVERSON, LINDA	23000.00	G	0.00	D, S

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/ D U	STO AMT	USE
G363178	14	N	15	17	SW	NE			VICEROY GOLD CORPORATION				
S013444	14	N	15	23	SW	SE	BRANT SPRING	IVANPAH LAKE	OVERSON, GARY	375.00	G	0.00	S
S013445	14	N	15	27	NE	NW	CLIFF CANYON SPRING	UNST	OVERSON, GARY	750.00	G	0.00	S
S011350	14	N	15	28	NW	NW	SACATON SPRING	UNST	OVERSON, GARY	750.00	G	0.00	S
A00435	14	N	15	33	NE	SW	CLARK SPRING	IVANPAH LAKE	OVERSON, GARY	3600.00	G	0.00	S
S013446	14	N	15	36	SE	NE	4TH OF JULY CANYON	4TH OF JULY CANYON	OVERSON, GARY	300.00	G	0.00	S
S013447	14	N	16	4	SE	SE	YOUNG WELL	UNST	OVERSON, GARY	750.00	G	0.00	S
S013448	14	N	16	4	SW	SW	SLAUGHTER HOUSE SPRING	UNST	OVERSON, GARY	1125.00	G	0.00	S
S013449	14	N	16	8	SE	NE	UNSP	IVANPAH LAKE	OVERSON, GARY	225.00	G	0.00	S
S013450	14	N	16	11	NE	NW	HIDDEN SPRING	UNST	OVERSON, GARY	375.00	G	0.00	S
S013451	14	N	16	14	SE	SW	BARNWELL WELLS	UNST	OVERSON, GARY	10500.00	G	0.00	S
A000678	14	N	16	22	NW	SW	LECYR WELL	UNST	OVERSON, GARY	4400.00	G	0.00	S, D
S013452	14	N	16	22	SE	NW	LECYR SPRING	SEARLES LAKE BASIN	OVERSON, GARY	225.00	G	0.00	S
A000679	14	N	16	28	NE	SE	MAIL SPRING	COLORADO RIVER	OVERSON, LINDA	4320.00	G	0.00	S, D
S013453	14	N	16	29	SW	NW	HUMMINGBIRD SPRING	UNST	OVERSON, LINDA	225.00	G	0.00	S
S013454	14	N	16	29	NW	SW	KEYSTONE SPRING	UNST	OVERSON, GARY	300.00	G	0.00	S
S013455	14	N	16	31	NE	NW	CARRUTHERS CANYON	CARRUTHERS CANYON	OVERSON, GARY	225.00	G	0.00	S
G363179	14	N	17	16	SE	NE			VICEROY GOLD CORPORATION				
D030264R	15	N	14	21	NW	SE	WHEATON SPRING	WHEATON WASH	DAVIS, DAVID	200.00	G	0.00	D
S013890	15	N	14	21	NW	SE	WHEATON SPRING	WHEATON WASH		200.00	G	0.00	D
G362334	15	N	15	20					MOLYCORP INC				
G362497	15	N	15	20					MOLYCORP INC				
G362742	15	N	15	20					MOLYCORP INC				
G362743	15	N	15	20					MOLYCORP INC				
G362744	1	N	15	20					MOLYCORP				

APPL. NUM.	T		R	SEC	1/4	1/4	SOURCE	TRIBUTARY	OWNER NAME	D/D AMT	D/DU	STO AMT	USE
	5								INC				
G362767	15	N	15	20					MOLYCORP INC				
G362790	15	N	15	20					MOLYCORP INC				
G362745	15	N	15	21					MOLYCORP INC				
A016964	15	N	15	23	SW	SW	MURPHY WELL	UNST	OVERSON, LINDA	6000.00	G	0.00	S
S013457	15	N	16	36	NE	NE	WILLOW SPRING	WILLOW WASH	OVERSON, GARY	750.00	G	0.00	S
S012868	15	N	17	16	SE	SE	INDIAN SPRING	SUPERIOR VALLEY	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	W, S
S012514	15	N	17	19	SE	SW	DOVE SPRING	UNST	U.S. BUREAU OF LAND MGMT	900.00	G	0.00	W
S013458	15	N	17	19	SE	SE	DOVE SPRING	UNST	OVERSON, LINDA	750.00	G	0.00	S
A017222	17	N	13	11	NE	SW	MESQUITE SPRING	UNST	DAVIS, EBBIE	400.00	G	0.00	S
A017220	17	N	13	12	SW	NW	BURRO SPRING	IVANPAH LAKE	DAWSON, D	642.00	G	0.00	S
A017216	17	N	13	13	NE	SW	WHISKY STILL SPRING	UNST	DAWSON, D	642.00	G	0.00	S
S012871	17	N	13	14	SW	SW	COLOSSEUM GORGE SPRING	COLOSSEUM GORGE	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	S, W
A017528	17	N	13	15	NE	SW	GREENS WELL	KINGSTON WASH	SMITH, JAN	2000.00	G	0.00	D, B, S
S012872	17	N	13	23	SE	SE	DRIPPING SPRING	UNST	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	S, W
S012873	17	N	13	23	SW	SW	BELL SPRING	IVANPAH LAKE	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	S, W
A017217	17	N	13	24	NW	SW	WILLOW SPRING	COLOSSEUM GORGE	DAWSON, D	642.00	G	0.00	S
A017226	17	N	13	24	SW	SE	IVANPAH SPRING	COLOSSEUM GORGE	DAWSON, D	642.00	G	0.00	S
A017227	17	N	13	24	NW	SE	CAMP WATER SPRING	COLOSSEUM GORGE	DAVIS, EBBIE	600.00	G	0.00	S
S012874	17	N	13	24	SW	SE	IVANPAH SPRING	COLOSSEUM GORGE	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	S, W
S012875	17	N	13	24	NW	SW	IVANPAH SPRING #2	COLOSSEUM GORGE	U.S. BUREAU OF LAND MGMT	1450.00	G	0.00	W, S
A017214	17	N	13	25	NE	NW	HACKBERRY SPRING	UNST	DAWSON, D	500.00	G	0.00	S

WATER RIGHTS CODES

RECORD TYPES

A - APPLC - APPROPRIATIVE
D - SMDOM - SMALL DOMESTIC REG
F - FEDRL - FEDERAL FILINGS (RESERVATION RIGHT)
G - GRWTR - GROUNDWATER RECORDATION
S - STATE - STATEMENT OF DIV & USE

USE TYPES

B - MINING
C - MILLING
D - DOMESTIC
E - FIRE PROTECTION
I - IRRIGATION
J - INDUSTRIAL
K - INCIDENTAL POWER
P - POWER
R - RECREATIONAL
S - STOCKWATERING
W - FISH & WILDLIFE PROTECTION AND / OR ENHANCEMENT

MISC

UNSP - UNNAMED SPRING
UNST - UNNAMED STREAM
UNXX - OTHER
M - MOUNT DIABLO BASE & MERIDIAN
S - SAN BERNARDINO BASE & MERIDIAN
C - CFS - CUBIC FEET PER SECOND; 646, 317 GALLONS PER DAY (GPD)
G - GPD - GALLONS PER DAY; 1.55 CFS
DD - DIR/DIV - DIRECT DIVERSION
STO - STORAGE

SECTION 1/4

D	C	B	A
NW/NW	NE/NW	NW/NE	NE/NE
E	F	G	H
SW/NW	SE/NW	SW/NE	SE/NE
M	L	K	J
NW/SW	NE/SW	NW/SE	NE/SE
N	P	Q	R
SW/SW	SE/SW	SW/SE	SE/SE

APPENDIX D: SPECIES OF SPECIAL CONSIDERATION

Species of special consideration is a broad term intended to encompass names used by managing agencies such as sensitive species, species of special concern, endangered, threatened, etc. Some terms can vary appreciably in formality or use and the criteria for species status can vary among agencies. In addition, most taxa carry more than one listing status or designation.

The sensitive species analysis included all species within the "Northern and Eastern Mojave Planning Area," an almost eight million acre area of California and a small part of Nevada. This analysis found that the NEMO planning area supports roughly 175 plant and animal species of special consideration. These include species that are endangered, threatened, proposed, or candidate species under the Federal Endangered Species Act of 1973, as amended; endangered, threatened, proposed, or rare under the California Endangered Species Act; or agency-defined sensitive or endemic species of special concern. The following tables show these protective designations or others defined by the California Native Plant Society (CNPS) or the California/Nevada Natural Diversity Data Base (CNDDB/NNDDB).

Habitats that support one or more species of special consideration were reviewed in this planning effort, although not typically given legal protective status by agencies, as are individual species. Because of this, habitats of special consideration may also be referred to throughout this document as "sensitive habitats." Those sensitive habitats which were a focus of plan review were riparian, wetland, sand dune and wash habitats as well as widespread or local habitats key in supporting desert tortoise, bats, bighorn sheep, carbonate plants and a variety of endemic species.

TABLE D-1: ANIMALS OF SPECIAL CONSIDERATION WITHIN THE NORTHERN AND EASTERN MOJAVE PLANNING AREA

(Federally or State Listed or Proposed Species known to occur within Mojave National Preserve are bolded)

ANIMAL SPECIES		LISTING STATUS		RECORDED (R) OR POTENTIAL (P) OCCURRENCE IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**Death Valley NP**	**Mojave NP**	**BLM**
BIRDS						
Cooper's hawk	*Accipiter cooperi*		CDF&G "Species of Special Concern"	R	R	R
tricolored blackbird	*Agelaius tricolor*	(Former C2) NPS SS	CDF&G "Species of Special Concern"	R	?	P
golden eagle	*Aquila chrysaetos*	Protected under the Bald Eagle Protection Act	CDF&G "Species of Special Concern"	R	R	R
long-eared owl	*Asio otus*		CDF&G "Species of Special Concern"	R	R	R
western burrowing owl	*Athene cunicularia-hypugea*	(Former C2)	CDF&G "Species of Special Concern"	R	R	R

ANIMAL SPECIES		LISTING STATUS		RECORDED (R) OR POTENTIAL (P) OCCURRENCE IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**Death Valley NP**	**Mojave NP**	**BLM**
ferruginous hawk	*Buteo regalis*	(Former C2) NPS SS	CDF&G "Species of Special Concern"	R	P	P
Swainson's hawk	***Buteo swainsoni***		**Threatened**	**R**	**R**	**R**
western snowy plover	*Charadrius alexandrinus nivosus*	**Coastal** populations are listed Threatened; **Inland** populations were formerly C2 NPS SS	CDF&G "Species of Special Concern"	R		R
northern harrier	*Circus cyaneus*		CDF&G "Species of Special Concern"	R	R	R
western yellow billed cuckoo	*Coccyzus americanus occidentalis*		Endangered	R		R
yellow warbler	*Dendroica petechia brewsteri*		CDF&G "Species of Special Concern"	R	P	P
southwestern willow flycatcher	***Empidonax traillii extimus***	**Endangered**	**(*Empidonax traillii* is state listed Endangered)**	**R**	**R**	**R**
prairie falcon	*Falco mexicanus*		CDF&G "Species of Special Concern"	R	R	R
yellow-breasted chat	*Icteria virens*		CDF&G "Species of Special Concern"	R	R	P
western least bittern	*Ixobrychus exilis hesperis*	(Former C2) NPS SS		R		P
California grey-headed junco	*Junco hyemalis caniceps*		CDF&G "Species of Special Concern"	R	R	P
loggerhead shrike	*Lanius ludovicianus*	(Former C2) NPS SS	CDF&G "Species of Special Concern"	R	R	R
gila woodpecker	*Melanerpes uropygialis*		Endangered			
elf owl	***Micrathene whitneyi***		**Endangered**	**R**	**P**	
western brown-crested flycatcher	*Myiarchus tyrannulus*		CDF&G "Species of Special Concern"			
hepatic tanager	*Piranga flava*		CDF&G "Species of Special Concern"	R	R	P
summer tanager	*Piranga rubra*		CDF&G "Species of Special Concern"	R	R	P
white-faced ibis	*Plegadis chihi*	(Former C2) NPS SS	CDF&G "Species of Special Concern"	R		
black-tailed gnatcatcher	*Polioptila melanura*		CDF&G "Species of Special Concern"	R	R	P (R?)
vermilion flycatcher	*Pyrocephalus rubinus*		CDF&G "Species of Special Concern"	R	R	P

ANIMAL SPECIES		LISTING STATUS		RECORDED (R) OR POTENTIAL (P) OCCURRENCE IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**Death Valley NP**	**Mojave NP**	**BLM**
Bendire's thrasher	*Toxostoma bendirei*		CDF&G "Species of Special Concern"	R	R	P
Crissal thrasher	*Toxostoma crissale*		CDF&G "Species of Special Concern"	R	R	P
Le Conte's thrasher	*Toxostoma lecontei*		CDF&G "Species of Special Concern"	R	R	R
Virginia's warbler	*Vermivora virginae*		CDF&G "Species of Special Concern"	R	R	P
least Bells vireo	***Vireo bellii pusillus***	**Endangered**	**Endangered**	**R**	**P**	**R**
gray vireo	*Vireo vicinior*		CDF&G "Species of Special Concern"	R	R	P
MAMMALS						
desert pallid bat	*Antrozous pallida*		CDF&G "Species of Special Concern"	R	R	R
Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	NPS SS	CDF&G "Species of Special Concern"	R	R	R
Panamint kangaroo rat	*Dipodomys panamintinus panamintinus*			R		R
California leaf-nosed bat	*Macrotus californicus*	(Former C2)	CDF&G "Species of Special Concern"		P (R?)	R?
Amargosa vole	*Microtus californicus scirpensis*	Endangered	Endangered			R
desert bighorn sheep	*Ovis canadensis nelsoni*	BLM SS		R	R	R
Mohave ground squirrel	*Spermophilus mohavensis*	(Former C2) NPS SS	Threatened	R		R
Kingston Mountain chipmunk	*Tamias panamintinus acrus*				R	R
american badger	*Taxidea taxus*		CDF&G "Species of Special Concern"	R	R	R
Amargosa southern pocket gopher	*Thomomys umbrinus amargosae*	(Former C2) NPS SS		R		R
AMPHIBIANS						
Inyo Mountains salamander	*Batrachoseps campi*	BLM SS (Former C2)	CDF&G "Species of Special Concern"	R?		R
black toad	*Bufo exsul*	(Former C2)	Threatened	R		R
REPTILES						
Panamint alligator lizard	*Elgaria panamintinus*	NPS SS	CDF&G "Species of Special Concern"	R		R
desert tortoise	***Gopherus agassizii***	**Threatened**	**Threatened**	**R**	**R**	**R**
banded gila monster	*Heloderma suspectum cinctum*	BLM SS	CDF&G "Species of Special Concern"		R	R
rosy boa	*Lichanura trivirgata*	(Former C2) NPS SS		R	R	R
chuckwalla	*Sauromalus obesus*	(Former C2)	CDF&G " Species of Special Concern"	R	R	R

ANIMAL SPECIES		LISTING STATUS		RECORDED (R) OR POTENTIAL (P) OCCURRENCE IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**Death Valley NP**	**Mojave NP**	**BLM**
FISH						
Devils Hole Pupfish	*Cyprinodon diabolis*	Endangered	NV Endangered	R		
Amargosa River pupfish	*Cyprinodon nevadensis amargosae*	BLM SS	CDF&G "Species of Special Concern"	R		R
Saratoga Springs pupfish	*Cyprinodon nevadensis nevadensis*		CDF&G "Species of Special Concern"	R		
Shoshone pupfish	*Cyprinodon nevadensis shoshone*	(Former C2)	CDF&G "Species of Special Concern"			R
Cottonball Marsh pupfish	*Cyprinodon salinus milleri*		Threatened	R		
Salt Creek pupfish	*Cyprinodon salinus salinus*		CDF&G "Species of Special Concern"	R		
Mohave tui chub	***Gila bicolor mohavensis***	**Endangered**	**Endangered**		**R**	
Amargosa Canyon speckled dace	*Rhinichthys osculus* ssp 1	(Former C2)	CDF&G "Species of Special Concern"	R		R
INSECTS						
Death Valley Agabus diving beetle	*Agabus rumpi*	(Former C2)				R
Furnace Creek naucorid bug	*Ambrysus funebris*	(Former C2)		R		
Kelso Jerusalem cricket	*Ammopelmatus kelsoensis*	(Former C2)			R	
Saratoga Springs Belastoma bug	*Belostoma saratogae*	(Former C2) NPS SS		R		
monarch butterfly	*Danaus plexippus*			R	P	R
Kelso giant sand treader cricket	*Macrobaenetes kelsoensis*	(Former C2)			R	
Furnace Creek riffle beetle	*Microcylloepus formicoideus*	NPS SS		R		
un-named riffle beetle	*Microcylloepus similis*	NPS SS		R		
Amargosa Naucorid bug	*Pelocoris shoshone amargosus*	(Former C2) NPS SS		R		R
Saline Valley Snow Front Scarab beetle	*Polyphylla anteronivea*	(Former C2)		R		
Death Valley June beetle	*Polyphylla erratica*	(Former C2) NPS SS		R		
Devils Hole riffle beetle	*Stenelmis calida calida*	NPS SS		R		
Shoshone cave whip scorpion	*Trithyreus shoshonensis*	BLM SS NPS SS				R
SNAILS						
Badwater snail	*Assiminea infima*	(Former C2) NPS SS		R		
Deep Springs fonticella	*Fonticella* sp.					R
Micrarionta rowelli bakerensis (no common name)	*Micrarionta rowelli bakerensis*	(Former C2)			R	

ANIMAL SPECIES		LISTING STATUS		RECORDED (R) OR POTENTIAL (P) OCCURRENCE IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**Death Valley NP**	**Mojave NP**	**BLM**
Oasis Valley spring snail	*Pyrgulopsis micrococcus*	NPS SS		R		
Grapevine Springs elongate tryonia	*Tryonia margae*	NPS SS		R		
robust tryonia	*Tryonia robusta*	NPS SS		R		
Grapevine Springs squat tryonia	*Tryonia rolandsi*	NPS SS		R		
Cottonball Marsh tryonia	*Tryonia salina*	NPS SS		R		
Amargosa tryonia	*Tryonia variegata*	NPS SS		R		?

STATUS EXPLANATIONS

Federal

NPS SS = National Park Service Sensitive Species = Any species or infraspecies not otherwise designated whose population characteristics warrant special management or more intensive monitoring. Consideration may include but is not limited to: local rarity; endemism, park management objectives, usefulness of species as an indicator species, vulnerability to population declines; human disturbance; political concern / public interest

BLM SS = Bureau of Land Management Sensitive Species = Sensitive species are those designated by a State Director, usually in cooperation with the State agency responsible for managing the species as sensitive. They are those species that are: (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.

State

CDFG "Species of Special Concern" = An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats. Some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a threatened or endangered species.

TABLE D-2: PLANTS OF SPECIAL CONSIDERATION WITHIN THE NORTHERN AND EASTERN MOJAVE PLANNING AREA

(Federally or State Listed or Proposed Species known to occur within Mojave National Preserve are bolded)

PLANT SPECIES		LISTING STATUS		CNPS	CNPS RED CODE	RECORDED OCCURRENCES IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**CNPS**		**Death Valley NP**	**Mojave NP**	**BLM**
Mormon needle grass	*Achnatherum aridum*			2	2-1-1	R	R	
Nevada onion	*Allium nevadense*			2	3-1-1		R	
pinyon rock cress	*Arabis dispar*			2	2-1-1	R		
Darwin rock cress	*Arabis pulchra* var. *munciensis*	BLM SS		2	3-1-1	R?		R
Shockley's rock cress	*Arabis shockleyi*			2	3-2-1	R		
white bear poppy	*Arctomecon merriamii*	BLM SS		1B	2-2-2	R		R
cloak fern	*Argyrochosma limitanea* var. *limitanea*			2	3-1-1		R	
playa milk-vetch	*Astragalus allochorous* var. *playanus*			2	2-2-1		R	R
Darwin Mesa milk-vetch	*Astragalus atratus* var. *mensanus*			1B	3-1-3	R		
Cima milk-vetch	*Astragalus cimae* var. *cimae*			1B	3-2-2		R	
black milk-vetch	*Astragalus funereus*	BLM SS		1B	3-2-2	R		
Geyer's milk-vetch	*Astragalus geyeri* var. *geyeri*	BLM SS		2	3-2-1	R		R
Gilman's milk-vetch	*Astragalus gilmanii*	Former C2		4	1-2-2	R		?
shining milk-vetch	*Astragalus lentiginosus* var. *micans*	Proposed Threatened		1B	3-2-3	R		
Sodaville milk-vetch	*Astragalus lentiginosus* var. *sesquimetralis*	Proposed Threatened	CA Endangered; NVCE	1B	3-3-2	R		
curved-pod milk-vetch	*Astragalus mohavensis* var. *hemigyrus*	BLM SS	NVCE#	1A		R?		?
little big-pod milk-vetch	*Astragalus platytropis*			2	2-2-1	R		
Preuss's milk-vetch	*Astragalus preussii* var. *preussii*			2	3-1-1	R?		
naked milk-vetch	*Astragalus serenoi* var. *shockleyi*			2	2-2-1	R	?	?
scaly cloak fern	*Astrolepsis cochisensis*			2	2-1-1	R?		R
ayenia	*Ayenia compacta*			2	2-1-1		R	
Fremont barberry	*Berberis fremontii*			3	?-?-1		?	?
King's eyelash grass	*Blepharidachne kingii*			2	2-1-1	R		R
red grama	*Bouteloua trifida*			2	3-1-1	R		R
alkali mariposa lily	*Calochortus striatus*	BLM SS	On NV watch list	1B	2-2-2			?

PLANT SPECIES		LISTING STATUS		CNPS	CNPS RED CODE	RECORDED OCCURRENCES IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**CNPS**		**Death Valley NP**	**Mojave NP**	**BLM**
crucifixion thorn	*Castela emoryi*			2	2-1-1		R	
Jaeger's caulostramina	*Caulostramina jaegeri*	BLM SS		1B	3-2-3	R?		R?
Spring loving centaury	*Centaurium namophilum*	Threatened	NVCE			R		?
Wooton's lace fern	*Cheilanthes wootonii*			2	2-1-1	R?	R	?
desert birds beak	*Cordylanthus eremicus* ssp. *eremicus*			4	1-1-3	R	?	?
purple bird's-beak	*Cordylanthus parviflorus*			2	3-1-1		R	
Tecopa birdsbeak	*Cordylanthus tecopensis*	BLM SS	NV Threatened	1B	3-2-2			R
Gilman's cymopterus	*Cymopterus gilmanii*			2	2-1-1	R		R
Ripley's cymopterus	*Cymopterus ripleyi*			2	3-2-1	R		
July gold	*Dedeckera eurekensis*	BLM SS	CA Rare	1B	2-1-3	R		R
Panamint Dudleya	*Dudleya saxosa saxosa*			4	1-2-3	R		
Howe's hedgehog	*Echinocereus engelmannii* var. *howei*	BLM SS		1B	3-3-3		R	
Panamint daisy	*Enceliopsis covillei*	BLM SS		1B	3-2-3	R		R
Ash meadows sunray	*Enceliopsis nudicaulis* var. *corrugata*	Threatened	NVCE	4	1-1-1	R		
nine-awned pappus grass	*Enneapogon desvauxii*			2	3-1-1		R	
Gilman's goldenbush	*Ericameria gilmanii*			1B	3-1-3	R		
forked buckwheat	*Eriogonum bifurcatum*	BLM SS	NV Threatened	1B	3-2-2	?		R
Reveal's buckwheat	*Eriogonum contiguum*			2	2-1-1	R		
Wild Rose canyon buckwheat	*Eriogonum eremicola*	BLM SS		1B	3-1-3	R		R
Thorne's buckwheat	***Eriogonum ericifolium* var. *thornei***		**CA Endangered**	**1B**	**3-2-3**		**R**	
jointed buckwheat	*Eriogonum intrafractum*	Former C2		4	1-1-3	R		?
Panamint Mountains buckwheat	*Eriogonum microthecum* var. *panamintense*	BLM SS		1B	3-1-3	R		R
juniper buckwheat	*Eriogonum umbellatum* var. *juniporinum*			2	3-1-1		R	R
hairy erioneuron	*Erioneuron pilosum*			2	2-1-1	R	R	
viviparous foxtail cactus	*Escobaria vivipara* var. *rosea*			1B	3-2-2		R	
Clark Mountain spurge	*Euphorbia exstipulata* var. *exstipulata*			2	3-3-1		R	

PLANT SPECIES		LISTING STATUS		CNPS	CNPS RED CODE	RECORDED OCCURRENCES IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**CNPS**		**Death Valley NP**	**Mojave NP**	**BLM**
hot-springs fimbristylis	*Fimbristylis thermalis*			2	2-2-1	R		
Kingston Mountain bedstraw	*Galium hilendiae* ssp. *kinstonense*	BLM SS	NV Threatened	1B	3-1-2			R
Telescope peak bedstraw	*Galium hypotrichium* ssp. *tomentellum*			1B	3-1-3	R		
Wrights's bedstraw	*Galium wrightii*			2	3-1-1		R	
Ripley's gilia	*Gilia ripleyi*			2	3-1-1	R		?
golden carpet	*Gilmania luteola*			1B	3-1-3	R		
pungent glossopetalon	*Glossopetalon pungens*	BLM SS		1B	3-2-2		R	
Ash meadows gumplant	*Grindelia fraxino-pratensis*	Threatened	On NV watch list	1B	3-2-2			R
Inyo hulsea	*Hulsea vestita* ssp. *inyoensis*	BLM SS		2	2-2-1	R		
Yellow ivesia	*Ivesia arizonica* var. *arizonica*			3	?-?-1	R		
Jaeger's ivesia	*Ivesia jaegeri*	BLM SS	On NV watch list	1B	3-1-2		R	
Kingston Mountains cinquefoil	*Ivesia patellifera*	BLM SS		1B	3-1-3			R
sand linanthus	*Linanthus arenicola*			2	1-2-1	R	R	
scrub lotus	*Lotus argyraeus* var. *multicaulis*			1B	3-1-3		R	
Providence Mountains lotus	*Lotus argyraeus* var. *notitius*			1B	2-1-3		R	
Panamint Mountains lupine	*Lupinus magnificus var. magnificus*	BLM SS		1B	3-1-3	R		
wolftail	*Lycurus phleoides* var. *phleoides*			2	3-2-1		R	
spearleaf	*Matelea parvifolia*			2	3-1-1		R	
violet twining snapdragon	*Maurandya antirrhiniflora* ssp. *antirrhiniflora*			2	3-1-1		R	
rock lady	*Maurandya petrophila*	BLM SS	CA Rare	1B	3-2-3	R		
Utah monkeyflower	*Mimulus glabratus* ssp. *utahensis*			2	3-2-1	R		
appressed muhly	*Muhlenbergia appressa*			2	2-2-1		R	
tough muhly	*Muhlenbergia arsenei*			2	2-1-1		R	
delicate muhly	*Muhlenbergia fragilis*			2	3-1-1		R	
few-flowered muhly	*Muhlenbergia pauciflora*			2	3-1-1		R	
false buffalo-grass	*Munroa squarrosa*			2	3-2-1		R	
forked purple mat	*Nama dichotomum* var. *dichotomum*			2	3-1-1		R	
slender Woolly-heads	*Nemacaulis denudata* var. *gracilis*			2	2-2-1		R	
Amargosa niterwort	*Nitrophila mohavensis*	Endangered	CA Endangered	1B	3-3-2	R?		R

PLANT SPECIES		LISTING STATUS		CNPS	CNPS RED CODE	RECORDED OCCURRENCES IN NEMO		
Common Name	**Scientific Name**	**Federal**	**State**	**CNPS**		**Death Valley NP**	**Mojave NP**	**BLM**
Eureka Dunes evening primrose	*Oenothera californica* ssp. *eurekensis*	Endangered	CA Rare	1B	3-2-3	R		
short-joint cactus	*Opuntia basilaris* var. *Brachyclada*	BLM SS		1B	3-2-3		R	
curved-spine beavertail	*Opuntia curvospina*			2	2-2-1		R	
beautiful cholla	*Opuntia pulchella*			2	2-2-1			R
Watson's oxytheca	*Oxytheca watsonii*			2	3-2-1	R		R
cliff brake	*Pellaea truncata*			2	2-1-1		R	
limestone beard tongue	*Penstemon calcareus*			2	2-1-1	R	R	?
Death Valley beardtongue	*Penstemon fruticiformis* var. *amargosae*	BLM SS		4	1-1-2	R	R	R
Pahute Mesa penstemon	*Penstemon pahutensis*					R		
Stephen's beardtongue	*Penstemon stephensii*	BLM SS		1B	2-2-3			R
Inyo laphamia	*Perityle inyoensis*	BLM SS		1B	3-2-3			R
Hanaupah rock daisy	*Perityle villosa*	BLM SS		1B	3-1-3	R		
Death Valley sandpaper plant	*Petalonyx thurberi* ssp. *gilmanii*	BLM SS		1B	3-2-3	R		?
Saline Valley phacelia	*Phacelia amabilis*			3	3-1-3	R		R
Aven Nelson's phacelia	*Phacelia anelsonii*			2	2-1-1	R?	R	
Death Valley round-leaved phacelia	*Phacelia mustelina*		On watch list in NV	1B	2-1-2	R		
Goodding's phacelia	*Phacelia pulchella* var. *gooddingii*			2	3-1-1	R		R
two-needle pinyon pine	*Pinus edulis*			3	3-1-1		R	
small-flowered rice grass	*Piptatherum micranthum*			2	2-1-1			R
desert popcorn-flower	*Plagiobothrys salsus*			2	3-2-1			R
notch-beaked milkwort	*Polygala heterorhyncha*			1B	2-1-2	R		
narrow-leaved cottonwood	*Populus angustifolia*			2	3-2-1	?	?	?
Albert's sanvitalia	*Sanvitalia albertii*			2	3-2-1		R	
burro grass	*Scleropogon brevifolius*			2	3-1-1		R	
desert wing-fruit	*Selinocarpus nevadensis*			2	3-1-1			R
Rusby's mallow	*Sphaeralcea rusbyi* ssp. *eremicola*	BLM SS		1B	3-2-3	R		R
Eureka Valley dunegrass	*Swallenia alexandrae*	Endangered	CA Rare	1B	3-2-3	R		
holly-leaved tetracoccus	*Tetracoccus ilicifolius*			1B	3-1-3	R		
Plummer's woodsia	*Woodsia plummerae*			2	3-1-1		R	

STATUS EXPLANATIONS

Federal

BLM SS = BLM Sensitive Species = Sensitive species are those designated by a State Director, usually in cooperation with the State agency responsible for managing the species as sensitive. They are those species that are: (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.

State

NVCE = Critically Endangered in Nevada
NVCE# = Recommended for Critically Endangered List, pending formal list

California Native Plant Society (CNPS)

List 1A = Plants presumed extinct in California
List 1B = Plants Rare, Threatened, or Endangered in California and elsewhere
List 2 = Plants Rare, Threatened, or Endangered in California, but more common elsewhere
List 3 = Plants about which we need more information--a review list
List 4 = Plants of limited distribution--a watch list

CNPS RED Code

R (Rarity)
1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time
2 = Distributed in a limited number of occurrences, occasionally more if each occurrence is small
3 = Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported

E (Endangerment)
1 = Not endangered
2 = Endangered in a portion of its range
3 = Endangered throughout its range

D (Distribution)
1 = More or less widespread outside California
2 = Rare outside California
3 = Endemic to California

TABLE D-3: LISTED PLANTS AND ANIMALS WITHIN MOJAVE NATIONAL PRESERVE

PLANT SPECIES		LISTING STATUS		CNPS	CNPS RED CODE	HABITAT	DISTRIBUTION	THREATS	IMPORTANCE OF NEMO TO LONG-TERM CONSERVATION OF THE SPECIES
Common Name	**Scientific Name**	**Federal**	**State**	**CNPS**					
Thorne's buckwheat	*Eriogonum ericifolium* var. *thornei*		CA Endangered	1B	3-2-3	Pinyon & juniper woodland, copper-rich gravel. 5900-6200 ft elev.	Eastern desert mountains. Known from only two canyons in the New York Mountains. Other varieties in AZ.	Potential threats from mining and grazing.	The entire known range of this variety is within the planning area.

ANIMAL SPECIES		LISTING STATUS		HABITAT	DISTRIBUTION	THREATS	IMPORTANCE OF NEMO TO LONG-TERM CONSERVATION OF THE SPECIES
Common Name	**Scientific Name**	**Federal**	**State**				
BIRDS							
Swainson's hawk	*Buteo swainsoni*		Threatened	Breeds in juniper-sage flats, riparian areas and in oak savanna. Requires adjacent suitable foraging areas such as grasslands, alfalfa or grain fields supporting rodent populations. Trees are important nesting habitat in desert.	Western half of U.S., w Canada, ne MX. In CA, primarily migrants throughout planning area. Has been recorded at the Amargosa Canyon Natural Area and its immediate drainage and at MOJA[1] and DEVA[2]. Owens Valley supports a small breeding population	Although formerly abundant in CA, loss of nesting habitat has reduced the state's population significantly. Off-site pesticide use is another significant threat.	The planning area encompasses little of the species' total range.
southwestern willow flycatcher	*Empidonax trailli extimus*	Endangered	(*Empidonax trailli* is State listed Endangered)	Inhabit extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters. Require dense willow thickets for nesting and roosting; low, exposed branches are used for singing posts and hunting perches. 2000-8000 ft elev.	Only 300-500 nesting pairs thought to exist over species' entire range (70 pairs in CA). Breeding range includes s CA, s NV, s UT, NM, w TX; (possibly sw CO, n Baja, CA and Sonora, MX). Recorded at Amargosa Canyon Natural Area, DEVA, and at least at the species level at MOJA.	Cowbird parasitism and habitat modification are primary threats; the latter from: water diversion, livestock grazing (including destruction of nests by cattle). ORV / OHV[3] and other recreational uses.	Certain wetlands in NEMO are ephemeral sites for SWWF. Because migration routes and wintering grounds are not well known and habitat patches as small as 0.5 hectares can support 1-2 nesting pairs, the planning area may be of some although limited importance to species

ANIMAL SPECIES		LISTING STATUS		HABITAT	DISTRIBUTION	THREATS	IMPORTANCE OF NEMO TO LONG-TERM CONSERVATION OF THE SPECIES
Common Name	Scientific Name	Federal	State				
							recovery.
elf owl	*Micrathene whitneyi*		Endangered	In CA, nesting area is limited to cottonwood-willow and mesquite riparian zone along the Colorado River. Nests in deserted woodpecker holes, often in larger trees that offer insulation from high daytime temperatures.	Along the Colorado River. Has been recorded at DEVA.		
least Bells vireo	*Vireo bellii pusillus*	Endangered	Endangered	Riparian; willow-cottonwood forest, oak woodland, shrubby thickets and dry washes established with arroyo willows. Small amounts of aquatic and herbaceous cover. Dense shrub layer from 2.0 to 9.9 ft above ground.	Only in CA and Baja CA. Small scattered areas in south/south-central CA; coastal/inland. Currently breeds in few scattered riparian habitat in s CA, in Amargosa River. Has been recorded at Amargosa Canyon Natural Area and its immediate drainage; also at DEVA.	Loss of riparian habitat. Brood parasitism by brown-headed cowbirds. Susceptibility to rapid local extinction resulting from disease outbreak or increase in predators or parasites. Nest predation by birds, snakes and mammals.	The planning area represents fringe habitats for LBV and low numbers of documented birds, given depleted habitats near large population centers in southern CA; however, NEMO management may contribute to species recovery.
REPTILES							
desert tortoise	*Gopherus agassizii*	Threatened	Threatened	Wide variety of habitats including alluvial fans, desert washes, broad valleys, creosote bush communities with annual flower blooms. Friable soil for digging burrows.	Mojave Desert portions of CA, NV, and north of the Colorado River in AZ and southwestern UT. Has been recorded at DEVA, MOJA, and BLM[4].	Upper respiratory tract and shell lesion diseases. Collection. Predation by ravens and canids. Conflicts with livestock and feral burros (trampling). Direct mortality and injury by humans from poaching, shooting, OHV / ORV use.	NEMO includes roughly 10-15% of total critical habitat designated for DT. Populations receive relatively few human impacts and may be relatively disease-free as compared with western Mojave populations, an important consideration for species recovery.

ANIMAL SPECIES		LISTING STATUS		HABITAT	DISTRIBUTION	THREATS	IMPORTANCE OF NEMO TO LONG-TERM CONSERVATION OF THE SPECIES
Common Name	**Scientific Name**	**Federal**	**State**				
FISH							
Mohave tui chub	*Gila bicolor mohavensis*	Endangered	Endangered	Adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning. All habitats where the species exists are artificial pond situations that have little resemblance of its native habitat.	Endemic to the Mojave River Basin. Found at Soda Springs within MOJA. Population at Soda Springs comprises about 30% of all existing populations. Also at China Lake and Camp Cady Wildlife Area.	Water fluctuations. Habitat restrictions. Habitat alteration by humans. Lack of habitat maintenance by humans.	Once abundant and wide ranging, but is now restricted to a single habitat in its native range. This occurrence is in NEMO.

NOTES

[1] MOJA = Mojave National Preserve

[2] DEVA = Death Valley National Park

[3] OHV/ORV = Off-Highway Vehicles or Off-Road Vehicles

[4] BLM = Bureau of Land Management public lands within the NEMO Planning Area

STATUS EXPLANATIONS

California Native Plant Society (CNPS)

List 1B = Plants Rare, Threatened, or Endangered in California and elsewhere

CNPS RED Code

R (Rarity)

3 = Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported

E (Endangerment)

2 = Endangered in a portion of its range

D (Distribution)

3 = Endemic to California

APPENDIX E: DESERT TORTOISE MITIGATION MEASURES

These measures are intended to minimize impacts to the tortoise. As appropriate, these mitigation measures will be taken by the National Park Service or included, as stipulations, with Special Use Permits issued by the National Park Service.

GENERAL MITIGATION MEASURES

1. Authorization of Biologists

An authorized biologist is a person approved by the U.S. Fish and Wildlife Service for moving tortoises out of a project area or from harm's way for a specific project. Such approval is granted only where a "take" has been approved by the U.S. Fish and Wildlife Service.

A qualified biologist is a person with appropriate education, training and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. The person may or may not be an authorized biologist. Review of credentials is at the discretion of the National Park Service.

2. Worker Training

All workers, including participating agency employees and construction and maintenance personnel, and others who implement authorized actions shall be given special instruction in protection of listed species including occurrence, sensitivity, and activity patterns of the desert tortoise. Instruction shall also include legal protection and penalties for violation of federal and state laws.

3. Compliance

The project proponent shall designate an individual as field contact representative (FCR) who shall be responsible for overseeing compliance and for coordination with the authorizing agency. Compliance shall include conducting species surveys, proper removal of species from areas being impacted, assurance that a sufficient number of qualified biologists are present during surface disturbance, and that all conditions of the authorization are being met by proponent, contractors, and workers. The FCR shall have the authority to halt activities that are in not in compliance with the authorization.

After completion of the project, the National Park Service shall conduct a review to determine if the permittee complied with the conditions of the permit. Corrective actions shall be required of the proponent where conditions have not been met.

4. Compensation

A mitigation fee based on the amount of acreage disturbed shall be required of the permittee. The formula used to determine the amount of acreage to be acquired is described in the Management Oversight Group (MOG) Desert Tortoise Management Policy and considers the following factors:

1) Habitat category,
2) Impact on adjacent lands reducing tortoise densities,

3) Whether or not the use will tend to induce growth,
4) Duration of the effect (i.e., short term–less than 10 years, long term–greater than 10 years).
5) Whether or not there is moderate to heavy existing disturbance

These factors are added together to arrive at an acreage multiplier use to determine the amount of compensation acres to be acquired by the project proponent. Category III habitat receives a compensation rate of 1.0 regardless of other factors.

5. Pre-construction Clearance Surveys

Pre-construction surveys shall be conducted to locate and remove desert tortoises prior to grading or actions which might result in harm to a desert tortoise or which remove tortoise habitat. The survey shall be conducted by an authorized biologist within 24 hours of the onset of the surface disturbance unless a tortoise-proof fence has been installed that would prevent re-entry of the animals.

6. Surface Disturbance

All surface disturbing activity shall be limited to the land area essential for the permitted project or activity. In determining these limits, consideration shall be given to topography, public health and safety, placement of facilities, and other limiting factors. Work area boundaries and special habitat features shall be appropriately marked to minimize disturbance. Where possible, previously disturbed areas shall be used as work sites and for storage of equipment, supplies, and excavated material.

Pre-construction activity, such as removal of vegetation, shall occur in the presence of a qualified biologist. No overnight hazards to desert tortoises shall be created by this activity (e.g., auger holes or any steep-sided depressions); hazards shall be eliminated each day prior to the work crew leaving the site.

Large disturbed areas, such as open-pit mines and landfills, shall be enclosed with tortoise-proof fencing to keep desert tortoises out of the work area. The fencing shall be removed when restoration of the site is completed. Temporary fencing shall be required around test sites where trenching or drill holes could trap animals or around other small, short-term projects where tortoises could move into the work area. Occasionally, seasonal restrictions and/or monitoring are required to alleviate the need for fencing.

Project maintenance and construction, stockpiles of excavated materials, equipment storage, and vehicle parking shall be limited to existing disturbed areas wherever possible. Should use of existing disturbed areas prove infeasible, any new disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows or vegetation, public health and safety, and other limiting factors. Special habitat features, particularly tortoise burrows, shall be flagged by the qualified biologist so that they may be avoided by installation equipment and during placement of poles and anchors.

7. Refuse Disposal

All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets shall be provided on-site if appropriate.

8. Pets

Pets shall be restrained either by enclosure in a kennel or by chaining to a point within the tortoise-proof exclosure if one has been constructed for the activity.

9. Ravens

Structures which may function as common raven nesting or perching sites are not authorized except as specifically stated in the appropriate NPS document. The permittee shall provide a graphic description of all structures to be erected on the site. Some actions are required to mitigate actual nesting on authorized structures, such as requiring the proponent to secure necessary permits to remove nests and to remove such nests in a timely fashion. The U.S. Fish and Wildlife Service does not (or rarely) authorize nest removal if birds are present in the nest, but does authorize nest removal after birds have left.

10. Firearms

Use or possession of firearms by the permittee or his/her agents in the project area shall be prohibited.

11. Motorized Access

Motor vehicle access is limited to maintained roads and designated routes.

Where access from a maintained road or designated route to a project's site is part of the approved development plan, length and location of the route shall be designed to minimize impact to the habitat. The amount of disturbed area shall be subject to the mitigation fee, and the route shall be designated "Limited Use" and not open to the public.

a. **Speed Limits**: Vehicle speed within a project area, along right-of-way maintenance roads and on routes designated for limited use shall not exceed 20 miles per hour. Speed limits shall be clearly marked by the permittee, and workers shall be made aware of these limits.

b. **Tortoises Under Vehicles**: Vehicles parked in desert tortoise habitat shall be inspected immediately prior to being moved. If a tortoise is found beneath a vehicle, the authorized biologist shall be contacted to move the animal from harms-way, or the vehicle shall not be moved until the desert tortoise leaves of its own accord. The authorized biologist shall be responsible for taking appropriate measures to ensure that any desert tortoise moved in this manner is not exposed to temperature extremes which could be harmful to the animal.

12. Route Maintenance and Surface Restoration

The following mitigation measures shall be implemented during all route maintenance and surface restoration projects:

a. **Heavy Equipment**: Operators of heavy equipment (such as roadgraders) shall be accompanied by a qualified biologist when working in desert tortoise habitat during the desert tortoise's active period (March 1 to October 31). The qualified biologist shall walk in front of the equipment during its operation and shall function as the field contact representative and have the responsibility and authority to halt all project activity should danger to a desert tortoise arise. Work shall proceed only after hazards to the desert tortoise are removed, the desert tortoise is no longer at risk, or the desert tortoise has been moved from harms way by an Authorized Biologist.

During the desert tortoise's inactive period (November 1 to the end of February), an on-site monitor is not required, but the equipment operator shall be qualified as described under measure 12d. Otherwise the operator shall be accompanied by a qualified biologist. The operator shall watch for desert tortoises while using the equipment and shall have the responsibility for preventing harm to desert tortoises, as described under measure 12a.

Operators of light equipment used for trail maintenance and project leaders for surface reclamation actions shall watch for desert tortoise or burrows during all project activities. They shall have the responsibility for preventing harm to desert tortoises, as described under measure 12a. They shall be qualified as described in measure 12d.

b. **Injury**: Should any desert tortoise be injured or killed, all activities shall be halted, and the authorized biologist immediately contacted. The biologist shall have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the permittee, if involved. If the animal recovers, the U.S. Fish and Wildlife Service is to be contacted to determine the final disposition of the animal; few desert tortoise are returned to the wild.

c. **Report**: The equipment operator, or authorized biologist shall keep a tally of all desert tortoises seen, moved, injured or killed during the project. Other required elements are: rating the effectiveness of required mitigation, a breakdown of actual habitat disturbance, and suggestions for improving mitigation.

d. **Ditches**: The equipment operator or qualified biologist shall inspect ditches for desert tortoise burrows before moving or shoveling any soil. If a desert tortoise burrow is present, the ditch shall be left undisturbed if possible. If the equipment operator inspects ditches for desert tortoise burrows, he or she shall be adequately trained in the identification of desert tortoise sign by the authorized biologist prior to conducting inspections.

e. **Burrows**: If a burrow is occupied by a desert tortoise and avoidance of the burrow is not possible during road maintenance or reclamation activities, the authorized biologist shall make the final determination. Only an authorized biologist may excavate the desert tortoise, following established protocols.

f. **Grading**: To avoid building up tall berms that may inhibit desert tortoise movement, the operator should minimize lowering of the road bed while grading. Berms higher than 12 inches or a slope greater than 30 degrees shall be pulled back into the road bed.

g. **Speed Limits**: The equipment operator shall watch for desert tortoises on the road whenever driving, transporting or operating equipment. Driving speeds shall not exceed 20 miles per hour, and operating speeds should not exceed 5 miles per hour to allow for adequate visibility.

SPECIAL MITIGATION FOR SPECIFIC USES

13. Mineral Exploration and Development

In addition to mitigation measures described above for general mitigation, the following special mitigation measures shall apply to small mining operations in which the surface disturbance or area from which desert tortoises are to be removed is less than ten acres:

a. **Compliance**: A qualified biologist shall be on-site during the initial mining activity.

b. **Explosives**: If explosives are authorized, the NPS biologist or environmental specialist shall verbally consult with the appropriate FWS office to determine what measures shall be required to reduce the potential to take desert tortoises. These measures may include:

1) Seasonal restrictions upon the use of explosives;

2) Temporary removal of desert tortoises from areas potentially at risk during detonation either directly from the explosion or by thrown materials. All handling and storage of desert tortoises for this purpose shall be conducted as described in measure 3 by an authorized biologist.

3) Covering of desert tortoise burrows to reduce impacts of flying materials.

14. Special Use Permit/Events

A Special Use Permit is needed for organized events involving fifteen or more individuals or seven or more vehicles. In issuing the permit, appropriate mitigation measures, in order to minimize the impact on the desert tortoise or other path resources, will be included. For certain activities, an Environmental Assessment may be necessary.

16. Utility Pipelines and Underground Cables

For construction and maintenance of all pipelines, fiber-optic lines, and other utilities requiring trenching, the following measures shall apply:

a. **Width**: Construction rights-of-way shall be restricted to the narrowest possible width.

b. **Exceptions**: All project construction and maintenance shall be restricted to the authorized right-of-way. If unforeseen circumstances require expansion beyond the right-of-way, the potential expanded work areas shall be surveyed for desert tortoises.

c. **Access**: Vehicular travel shall be limited to the right-of-way. Access to the right-of-way shall be limited to public roads and designated routes.

d. **Trenches**: Open trenches shall be regularly inspected by the authorized biologist at a minimum of once per day, and any desert tortoises that are encountered shall be safely removed. For small projects, escape ramps are sometimes required. The length of the trench left open at any given time shall not exceed that distance which will remain open for one week or less in duration. A final inspection of the open trench segment shall be made by the authorized biologist immediately prior to backfilling. Arrangements shall be made prior to the onset of maintenance or construction to ensure that desert tortoises can be removed from the trench without violating any requirement of the Occupational Safety and Health Administration.

e. **Maintenance**: Observations of desert tortoises or their sign during maintenance shall be conveyed to the field supervisor and a biological monitor. Employees shall be notified that they are not authorized to handle or otherwise move tortoises encountered on the project site.

f. **Compliance**: Sufficient authorized and qualified biologists shall be present during maintenance or construction activities to assist in the implementation of on-site mitigation measures for the desert tortoise and to monitor compliance. The appropriate number of biologists will depend upon the nature and extent of the work being conducted and shall be stated in the right-of-way grant for each particular action, after consultation with the specific resource area office authorizing the action.

g. **Final Assessment**: The authorizing agency shall ensure that maintenance or construction activities are confined to the authorized work areas by means of a post-project assessment. The assessment may be conducted by the authorized biologist. If maintenance or construction activities have extended beyond the flagged work areas, the National Park Service shall ensure that the project proponent restores these disturbed areas in an appropriate manner.

h. **Restoration**: The proponent shall be required to restore disturbed areas in a manner that would assist re-establishment of biological values within the disturbed rights-of-way. Methods of restoration shall include, but not be limited to; road closure, the reduction of erosion, respreading of the top two to six inches of soil, planting with appropriate native shrubs, and scattering any bladed vegetation and rocks, where appropriate, across the right-of-way.

18. Power Transmission

The following mitigation measures shall be implemented during all construction and maintenance of transmission lines: (Where Memorandums of Understanding (MOUs) or other agreements are appropriate, measures will be included within the agreement).

a. **Surveys**: When access along the utility corridor already exists, pre-construction surveys for transmission lines shall provide 100 percent coverage for any areas to be disturbed and within a 100-foot buffer around the areas of disturbance. When access along the utility corridor does not already exist, pre-construction surveys for transmission lines shall follow standard protocol for linear projects.

b. **Access**: To the maximum extent possible, access for transmission line construction and maintenance shall occur from public roads and designated routes.

c. **Disturbed Areas**: To the maximum extent possible, transmission pylons and poles, equipment storage areas, and wire-pulling sites shall be sited in a manner that avoids desert tortoise burrows.

d. **Restoration**: Whenever possible, spur and access roads and other disturbed sites created during construction shall be recontoured and restored.

e. **Ravens:** All transmission lines shall be designed in a manner that would reduce the likelihood of nesting by common ravens. Each transmission line company shall remove any common raven nests that are found on its structures. Transmission line companies must obtain a permit from the U.S. Fish and Wildlife Service's Division of Law Enforcement to take common ravens or their nests.

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